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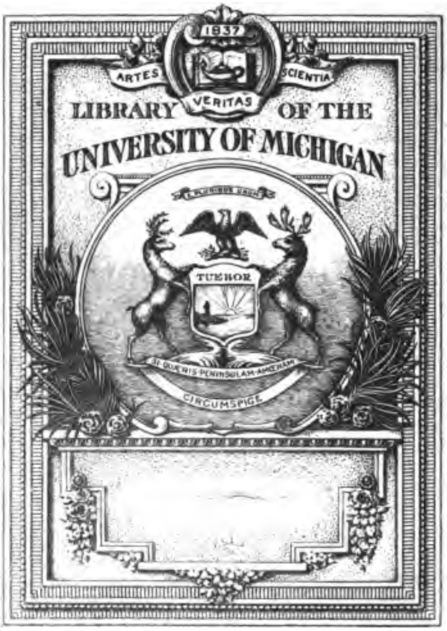
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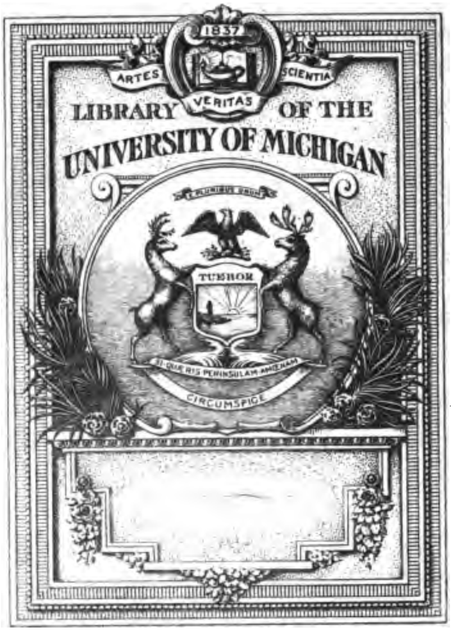

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THE PHYTOLOGIST FOR 1850.

Pp. 745—1020.

LONDON:
PRINTED BY E. NEWMAN, DEVONSHIRE STREET,
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THE

PHYTOLOGIST:

A

POPULAR

BOTANICAL MISCELLANY.

CONDUCTED BY

EDWARD NEWMAN.

VOLUME THE THIRD.

(CONCLUDED).

WISDOM OF GOD IN CREATION.

LONDON:

JOHN VAN VOORST, PATERNOSTER ROW.

M.DCCC.L.

The smallest flower
That twinkles through the meadow-grass, can serve
For subject of a lesson; aye, as well
As the most gorgeous growth of Indian climes;
For love of nature dwells not in the heart
Which seeks for things beyond our daily ken
To bid it glow. It is in common life,
In objects most familiar, we find
Exhaustless matter for our privilege,
Our glorious privilege of reading God
Amid his bright creation.

L. A. Twamley.

Compl. sets
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PREFACE.

The *British* character with which from the beginning I have striven to invest this journal, has been remarkably developed during the present year, and I believe this restriction has been a main cause of the very considerable increase in circulation which has taken place. The establishment of a somewhat rival journal, under the title of the 'Botanical Gazette,' although conducted with the same fairness, and absence of hostile expression, which I trust has invariably characterized the pages of the 'Phytologist,' yet seemed likely to divide botanists into two sections, and establish a party in favour of each. I cannot find that this has been the case, and I regard the 'Gazette' as likely to draw from the pages of the 'Phytologist' only such purely technical papers as previously were occasionally, but very unfrequently, found in its pages. One circumstance, however, connected with the 'Gazette' I cannot avoid mentioning with regret. I allude to the fact that on its commencement the Botanical Society of Edinburgh ceased to send me reports of their meetings, while such reports were regularly supplied to the 'Gazette.' Seeing that I was one of the earliest subscribers to the Botanical Society of Edinburgh, that I obtained for them a great number of other subscribers, and that I never subscribed to any other Botanical Society, this conduct certainly seems uncourteous, some might say unjust. The Botanical Society of London has taken a directly opposite course, and has regularly transmitted an account of its proceedings, although I have never subscribed towards their expenses. I beg very cordially to thank Mr. Dennes, the energetic and indefatigable Secretary, for his continued kindness and attention in this matter.

The 'Phytologist' for the present year is characterized by the value and extent of Dr. Bromfield's paper, intituled a 'Catalogue of the Plants growing wild in Hampshire.' Independently of the mass of general information conveyed under this title, Dr. Bromfield has conferred an important and lasting benefit on the science of British Botany, by reviewing, in a truly philosophical and most truth-seeking spirit, the claims of certain disputed species to be regarded as true natives of this island. This talented botanist entirely ignores the fact of occasional cultivation as a sufficient ground for distrust; and contends that if a species increases spontaneously, firmly maintaining its position in our woods or moors, under similar circumstances as regards latitude, soil and situation, to those in which it has always been found on the continent of Europe, and which have obtained for it an unquestioned place in European floras, then it has an equal right to be admitted without question into our own. Dr. Bromfield's observations on Fritillaria Meleagris (Phytol. iii. 964) and Lilium Martagon (*Id.* 968) are worthy of the most careful study. Nothing can be more confused, contradictory and unsatisfactory, than the capricious decisions of our publishing botanists as regards the nativity of plants growing wild in Britain; and great praise is due to one who has ventured to treat the subject in so searching and logical a manner. The same distinguished botanist has for the first time laid down characters whereby the closely-allied Orchis bifolia and O. chlorantha may be distinguished from each other (Phytol. iii. 991).

Mr. Watson has an admirably lucid paper, intituled 'Explanatory Notes on certain British Plants for distribution by the Botanical Society of London, in 1850' (Phytol. iii. 801). The plants noticed are the Viola canina group, Poterium muricatum, Melilotus arvensis, Fumaria agraria, Stachys ambigua, Sinapis Cheiranthus, Arenaria media, Lastrea uliginosa, Cystopteris fragilis, var. *Dickeana*, Hieracium sylvaticum, c. *pictum*, Polygala depressa, Atriplex patula-deltoidea, Bromus pseudo-velutinus, Pyrethrum inodorum, proliferous variety, and Hyacinthus non-scriptus with foliaceous bracts.

The Rev. Mr. Bree, whose writings must, I am sure, be always read with delight and instruction, has three interesting papers. The first is called 'Warwickshire Habitat for Gagea lutea' (Phytol. iii. 922). The second, 'A Visit to the Lily Field, or Narcissus poeticus in Warwickshire' (Phytol. iii. 945). In this contribution the extraordinary abundance of the beautiful Narcissus in the locality described is very pleasingly set forth (Phytol. iii. 945). And the third, 'Note on Lastrea uliginosa' (Phytol. iii. 1087). In the last, Mr. Bree pronounces this fern, which I had ventured to describe as new, to be identical with Lastrea spinosa, as he is accustomed to see it in his own immediate neighbourhood. He does not pronounce this judgment carelessly or hastily; neither does he content himself with my own imperfect description; but has been at the trouble of obtaining a living plant from Mr. Kennedy, of Covent Garden, and has instituted a fair and searching examination of its characters. On such a question as this I have the highest possible respect for Mr. Bree's judgment: the great talent he has displayed in extricating rigida and recurva from the confused mass of species previously known as dilatata of Smith, and spinulosa of Hooker, entitle him to our warmest praise. On the other hand, it seems fair also to state that Mr. Moore, of the Chelsea Botanic Garden, a gentleman who has made our British ferns his peculiar study, and who has written with great success on this very subject, labels the fern in question, without doubt, as Lastrea cristata (see Phytol. iii. 802). It may, I think, however, be gathered from a careful study of the passages to which I have referred, that both these excellent botanists regard the fern rather as an aberration from the species named than as its typical form; and thus their opinions assimilate more nearly with each other, and also with what I have advanced on the subject, than at first sight appears to be the case.

Mr. Bloomfield mentions (Phytol. iii. 943) the discovery of Orchis hircina in Suffolk, a circumstance of considerable interest; and while writing of this rarest of British Orchideæ, I will take the opportunity of recording the fact that James Potter, well known as a collector of

British ferns and Orchideæ, and who, I regret to say, has lately died of consumption, brought to me for four successive years living specimens of Orchis hircina, with a round of virgin turf still investing the stem, which he asserted he had himself dug up in Kent. As Potter always refused to disclose the exact locality, I have hitherto declined saying anything on the subject, knowing that the extravagant price given by some botanists for this and other rarities holds out a premium to deception, and thinking it possible poor Potter might have received the plants from abroad. I may, however, add that I never had any better reason for this uncharitable suspicion than the fact that botanists have uniformly failed in rediscovering the plant in its Kentish station.

Mr. Woods has a paper intituled 'Botanical Notes, the result of a Visit to Glamorgan and Monmouthshire in the latter part of July and beginning of August' (Phytol. iii. 1053). This paper is interspersed with numerous observations on the characters of supposed species of Rubi, and the introductory paragraph on this fashionable genus contains some highly valuable remarks, worthy of a very careful perusal.

To Mr. Bladon, of Pont-y-Pool, we are indebted for a paper on the genus Hieracium, exhibiting a tabular view of the species as they stand in Fries's 'Symbolæ ad Historiam Hieraciorum' and Mr. Babington's 'Manual of British Botany.' This contribution might have been rendered still more useful had the author added more largely, and given more copious explanations, from his own resources; for it is well known that few of our British botanists have paid so much attention to this difficult genus. A careful revision of the British species is still a great desideratum, and I hope Mr. Bladon may be induced to undertake it. By confining the attention to a limited group of this kind, much more may be effected even by a tyro in botany than can be achieved by the greatest proficient, as an infinitesimal portion of the vast whole which he is desirous of grasping.

Mr. Kirk has an interesting paper on Udora canadensis, as occurring in Watford Locks. This gentleman learned that a branch of the Market Harborough Canal was so full of this plant, “that the passage of boats was impeded by it, and the canal necessitated to be cleared out once or twice a year, and that it had been so for many years” (Phytol. iii. 990). In connexion with this subject, Mr. Kirk well observes, “How very remarkable that for so long a period this plant, in widely separated localities, should, with the single exception of Berwickshire, have totally escaped the notice of botanists.” I cannot resist the temptation I feel again to express my regret that Mr. Babington should have thought it necessary to give this plant another name, and more especially that the new name should be even partially retained, although our best botanists consider the plant absolutely identical with the North-American species.

Mr. Thomson records the discovery of Lobelia urens in a wood near Ashford, in Kent (Phytol. iii. 1051). The only previously known British habitat of this conspicuous species is in Devonshire, and its occurrence in Kent is a circumstance of great botanical interest. I may add that Mr. Thomson most obligingly brought me a living specimen from this locality, in order to convince me that the species was correctly named.

Mr. Webb has a paper on the Allium Holmense of Ray (Phytol. iii. 937), which he appears to consider identical with A. Porrum, and to be descended from the common leek, as cultivated in gardens: he also invites a further examination of the Steep-Holms' plant, since it has been universally treated by botanists as Allium Ampeloprasum, a plant which appears to be absent from the western departments of France.

Mr. Lees reports the occurrence of Atriplex hortensis in Worcestershire (Phytol. iii. 1050), at the same time informing his readers that he finds it on *made* ground, and suggests that the seeds of this old olitory plant may have lain dormant for many years. The same

He also communicates a paper on the 'Botanical Features of the Great Orme's Head' (Phytol. iii. 869).

Mr. Keys, of Plymouth, contributes (Phytol. iii. 869) a list of 'Plants found in Devonshire and Cornwall, in addition to those contained in Jones's 'Flora Devoniensis,' and in Art. LII. of Part 1 of the 'Phytologist.' The list contains thirty-one species, but I suspect that some of them, as Datura Stramonium and Polemonium cæruleum, must be regarded rather in the light of intentional omissions on the part of former botanists, than as additions to the Devonian flora.

The other contributors of original papers are Mr. James Backhouse, Mr. Alfred W. Bennett, Mr. W. Bennett, Mr. Buckman, Mr. De la Chaumette, the Rev. Mr. Douglas, Mr. B. Flower, Mr. Holland, Mr. Hussey, Mr. Luxford, Mr. Ogilvie, Mr. Oliver, Mr. Roby, and Mr. Withers, all of them recording the observations made during botanical excursions, or some facts of interest connected with the science; and I must not omit to notice, although recorded only on the wrapper, the discovery of Cyclamen Hederæfolium on our southern coast, near Hastings, by Mr. W. W. Saunders; of Lycopodium annotinum in a second Caernarvonshire station, by Mr. W. W. How; and of Cystopteris montana a third time in Scotland, by Mr. Borrer and Dr. Walker-Arnott.

The reports of the Botanical Society of London contain a number of interesting records. I would particularly cite the discovery of Lilium pyrenaicum between South Molton and Molland, in Devonshire, by Mr. George Maw (Phytol. iii. 988), and that of Naias flexilis in a pond near Roundstone, Connemara, Ireland, by Mr. Daniel Oliver, Jun. (Phytol. iii. 1068).

It is well known to the majority of my readers that I am indebted to an abler botanist than myself for those notices of new works to which the signature "C." is affixed. One of these, intituled "Notice of the 'Tourist's Flora'" (Phytol. iii. 1042), has, I regret to find, been thought unfair by the author reviewed, and has led him to publish a reply (*Id.* 1085). In distinctly stating that the notice in question is not my own, I by no means desire to shrink from every responsibility. The public has no rule for separating the anonymous "we" of a reviewer from the actual and avowed editor, although the latter may possess neither the talent nor the knowledge to write the article in question; and I therefore adopt as my own the said review, and neither evade nor extenuate the responsibility incurred. Regarding, then, the review of the 'Tourist's Flora' as my own until another shall claim its paternity, I think it right to say that I extremely regret the use of such terms as "false" and "faithless" as applied to that work (I cannot admit that they are applied to its author), because, although in the multiplicity of the statements it contains, some may not be perfectly correct or perfectly trustworthy, yet I believe such exceptions to arise solely from the difficulty of attaining perfect accuracy, and therefore not deserving the epithets in question. On the other hand, I cannot but regret that Mr. Woods should have stated his objections in the manner he has done. "The whole charge against me," says Mr. Woods, "was, that I had not given certain habitats of plants when I knew them, or ought to have known them, since they had been published in the works of Mr. H. C. Watson." Now the reviewer, as an example of insufficient habitat, cites Lycopodium annotinum, and of erroneous habitat, Lastrea fœnisecii, plants the habitats of which Mr. Watson, as far as I am aware, has nowhere given.

The other books noticed during the present year are three: 'A Manual of the British Marine Algæ,' by W. H. Harvey, M.D.; 'A Flora of Leicestershire, comprising the Flowering Plants and Ferns indigenous to the County,' by Mary Kirby, with Notes by her Sister; 'Entwickelungs Geschichte der Farrnkräuter,' von J., Grafen Lesczyc-Suminski. The first of these has taken its station among the standard publications of the day; the last is one of those German wonders which, whether intrinsically true or somewhat poetical, we are too apt in this country to regard with distrust. It is intended to resume the notice at an early period, but the testing of Suminski's observations, by an examination of the objects themselves, is attended with considerable labour; and requires a large share of patience and perseverance; and as it is highly important that a premature judgment on this most interesting question should not appear in the pages of the 'Phytologist,' I feel confident that my readers will pardon what may appear an uncalled-for delay in the completion of a literary notice. The theory has been condemned on the continent by Schleiden, and adopted in this country by a reviewer in a Quarterly Journal of Medicine; but from a perusal of the judgment pronounced by both these writers I am led to doubt whether either has possessed the means of testing Suminski's accuracy. A difficulty presents itself on the very threshold of the inquiry. Suminski describes certain actions as taking place within a cell, the walls of which are fleshy and perfectly opaque. Now it is remarkable that neither his advocate nor his detractor explains how they obtained a view of the interior; neither does anything they have written justify the conclusions at which they have respectively arrived.

On a former occasion I expressed an opinion in favor of these papers which record the observations made during a botanical ramble. I entertain precisely the same opinion of them still. I consider that such papers afford an agreeable and convenient mode of communicating our thoughts to a larger circle than can be reached by a private letter; and the points to be kept in view in penning them, are, *first*, to render them instructive, by making known new stations, pointing out geological relations, restricting or extending the supposed range of variation in a species, and, in fact, adding in any manner to our previous knowledge; and, *secondly*, by never reciting as discoveries such stations for plants as were previously generally known, unless it be with a view of recording that the species still exists in the described locality. It would not be difficult to select from the pages of the 'Phytologist' localities recorded as new, although these have previously appeared in 'English Botany,' the 'British Flora,' both 'Botanist's Guides,' and 'Cybele Britannica.' This seems to me objectionable, and certainly implies a want of acquaintance with the works in question. The last-named work, being last also in date, contains, as far as it has yet gone, a digested summary of the stations published in all the rest, in addition to the mass of information conveyed in the 'Phytologist,' and the result of the author's personal observations during his excursions. Thus the topography of our plants has become patent to all inquirers, and to repeat without comment prior observations, implies either a want of care or a want of courtesy. I do not hesitate to believe that the first is invariably the case. I am, however, of the decided opinion that a local or comital enumeration of species affords the best of all opportunities for communicating such casual observations as might and must ever occur in botanical conversation, and which certainly give a chief zest to the pursuit; and I recommend this plan in preference to all others, well knowing how superficial is the idea of a local flora which one obtains by means of a hasty ramble, compared with that resulting from a long residence and intimate acquaintance with the neighbourhood described. How many tracts throughout the kingdom would repay a minute examination!—and how many botanists are there who have both leisure and ability to perform the task! I hope the hint will not be lost, but that many who read these observations will be induced thereby to become the botanical historians of their respective homes.

In conclusion, I beg to offer my very sincere thanks to those botanists who have so kindly and cordially supplied me with contributions; and at the same time I most earnestly solicit their continued assistance. I know not how to state more emphatically than I have already done the estimation in which I hold the slightest fact connected with Natural History. It matters not how soon or how entirely the discoverer or recorder may be forgotten: the fact remains for the instruction of all ages. Thus the ternary arrangement of the floral envelopes in a great proportion of the endogens; the quaternary and quinary arrangement in large orders of exogens; the strict analogy between regular and irregular corollas, so beautifully exemplified by the [illegible] the pelorian snapdragons and violets; the extreme rarity of instances in which any species of plant produces in its corolla the three usual colours, two being the utmost variation in which nature seems disposed to indulge;—these and a hundred other instances might be adduced to prove the utility of recording facts; directly they are made patent they become part and parcel of the science; so obvious, indeed, that they are never in future to be overlooked, though formerly unknown to *all*, and even now escaping the notice of *all but the instructed.* It rarely, indeed, falls to our lot in the present day to be the first to notice facts like those I have here incidentally mentioned; neither do we all possess the discriminating power of originally detecting such facts. We cannot all be Robert Browns; but we can all add our mite to the general mass of knowledge, and we owe this return for the instruction we have received.

EDWARD NEWMAN.

9, Devonshire St., Bishopsgate,
December 12, 1850.

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A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By William Arnold Bromfield, M.D., F.L.S., &c.

(Continued from page 744).

Plantago major. In meadows, pastures, waste places and by road-sides; everywhere extremely common.

A few specimens of P. Psyllium, arenaria or Cynops (I am unable to distinguish between these three in the dried state), were found on the loose sand of the Dover at Ryde, in May, 1843, by Thos. Brown, Esq., with one of which he kindly presented me. The specimen is small and stunted, and agrees better with P. Cynops, I think, than with the other two species. Both this and P. Psyllium are rather southern plants, and the Ryde specimens, to whichever of the three kinds mentioned above they belong, have in all probability been casually introduced, and have since disappeared or been eradicated by recent improvements. P. arenaria, nevertheless, may reasonably be expected to prove a British species, as it inhabits many of the neighbouring countries of the continent as far north as Hamburgh.

Littorella lacustris. On the margins and in the shallows of pools, lakes, canals, &c.; rare. Not yet noticed in the Isle of Wight. "Wolmer and Frensham Ponds are in a manner paved with it;" Mr. Wm. Pamplin. I have seen it in the former station. Wolmer Forest and Shortheath; Dr. T. Bell Salter!!! Plentiful in Sowley Pond (three miles E. of Lymington) "in large beds quite under water;" Mr. Robert Jefferd!! Probably frequent on the old forest district of the county.

Obs.—I omit Amaranthus Blitum from the catalogue of the plants of this county, although it has been indicated to me by the Rev. E. M. Sladen as growing at Warnford, near West Meon, because I think it very possible that some species of Chenopodium (probably C. polyspermum) was mistaken for it by Mr. S. It h[illegible] into the list of Hants plants in the 'New Botanist's Guide,' where the station at Ripton must be expunged, as on referring to the authority cited, that of the 'English Flora,' it will be seen that Ripton in Huntingdonshire is the place specially mentioned by Smith. Still, A. Blitum is not an unlikely plant to occur within the county on waste ground, dung-hills, and in gardens; I am told it is persistent within certain limits, and by no means rare on the Surrey side of the Thames near London, at Wandsworth, if I recollect rightly, and as a weed in garden ground. A. retroflexus would appear to have occurred (wild ?) in Hertfordshire. It is frequent in the north of France, and I have remarked either this or A. sylvestris in plenty at Paris formerly. Polycnemum arvense, an inconspicuous plant of dry, sandy fields, belonging to this order (Amaranthaceæ) I should not think strange to hear had been discovered in England. It is indigenous to France, Belgium, and most parts of Germany.

Schoberia maritima (Chenopodium maritimum). On muddy seashores, in salt-marshes, and about the mouths of tide rivers; very common both here and on the mainland of the county. Plentiful along the Medina betwixt Cowes and Newport. Brading harbour and Newtown salt marshes; abundantly. Profusely in a salt-marsh meadow at Springfield, near Ryde, which is covered with this species exclusively. Shores of Portsmouth and Langston harbours, Hayling Island, &c., abundantly. Var. β. Larger, stems spreading, procumbent, almost woody, root thick, ligneous, biennial? (Wahlenb. Fl. Suec. ed. altera, i. p. 168, supra). In loose sand at Springfield; plentifully. In Newtown marshes, as about Newtown Saltern, &c., abundantly.

Schoberia fruticosa (Chenopodium fruticosum) should be looked for along the coast of Hants. It grows in profusion on a part of Poole harbour called the Baiter, on a neck of land which is nearly an island at high water, and is particularly abundant there near a small building once a powder-magazine, and still known as the powder-house. On this peninsula it forms large bushes, three or four feet high, with excessively hard and perfectly ligneous stems; some of the oldest have existed before Dr. Salter, who is a native of Poole, can remember, and I cut down a stem as thick as my wrist some years ago, which was nearly black with age. The plants do not grow on mud, but on the diluvial deposit of the Poole basin, mixed, perhaps, with a proportion of sea-sand. It may very possibly be found on some part of our Hampshire line of coast, which, with its various indentations, is of considerable extent, and has yet been but imperfectly and partially explored botanically by myself and others. The genus Schoberia has been properly separated from Chenopodium by the spiral embryo and want of albumen, as well as by the great difference in habit, in both which it approaches Salsola. Yet it is remarkable, that whilst Smith removed Sch. fruticosa from Chenopodium to Salsola, he retained S. maritima amongst the Chenopodia, and so very unnaturally separated generically two plants having the most intimate specific relationship. The seeds of Schoberia maritima are horizontal, thrice as large as in Schoberia fruticosa, orbicular-reniform, considerably flattened, with a somewhat indistinct border, purplish black, shining, and very finely and copiously reticulate-striate. In Schoberia fruticosa the seeds are vertical, nearly globose, scarcely, if at all compressed, without a border, jet black, exquisitely polished, and, under a high magnifier only, appearing faintly reticulated. In both species the embryo is equally spiral, surrounding but little or no albumen. Moquin-Tandon in his 'Monographia Chenopodearum' places both our native species of Schoberia in the genus Sueda, but in different sections, whilst, in his later arrangement of the order Salsolaceæ, forming Part 13 of Decandolle's Prodromus, he disunites them again generically, as Smith had done, placing Schoberia fruticosa, as before, in Sueda, and transferring Schoberia maritima to his own new genus Chenopodina, mainly on account of the horizontal position of the seeds, which in the other is vertical, as we have just now seen. But the intimate alliance between these two species proves how artificial is the generic character founded on the position of the seed, which in some Chenopodiums, for instance, C. glaucum, is vertical in the lateral and horizontal in the terminal flower of each cluster.

Salsola Kali. On sandy sea-shores; frequent in the few localities fitted for its production in the Isle of Wight, and I believe along the coast of the county generally. Plentiful on Bembridge and St. Helen's Spits. Sandown Bay; Mr. E. Lees in New Bot. Guide Suppl. (I am not sure of having seen it there myself). Very abundantly along the south shore of Hayling Island, if I recollect right, and in Portsea Island, but I quote from memory, finding no entry amongst my notes to that effect of a plant so generally common as this. I did not remark it, however, on the sand-hills at Christchurch Head, or on the shore to the eastward of Muddiford, both which stations I found unusually deficient even in the commoner sea-side plants.

Chenopodium olidum. In dry waste places about towns and villages, and especially at the foot of walls and amongst rubbish, but certainly not common in Hants. Very rare in the Isle of Wight.

Rather abundantly at the foot of an old and long wall at East Cowes, where I have known it for at least ten years; but the species was first observed and pointed out to me in this island by my friend the Rev. Darwin Fox, growing in his garden at Binstead, but very sparingly, and he suspected introduced by accident from seed brought by him out of Derbyshire. Observed for some years past under a wall in Mr. Butt's garden, at Ryde, though sparingly, by Dr. Salter !! At Gosport here and there; rather plentifully under the wall of Trinity Church Cemetery. At Fareham, under a wall, October, 1848. Fareham, Wallington; Mr. W. L. Notcutt !!! By the Magazine at South Sea Castle, Portsea Island; Mr. Jacobs !!! and probably in many other places in the county. More frequent usually along the coast than inland, but I have seen it plentifully at Guildford, in Surrey, and other interior towns. The smell of this repulsive little species has been compared to that of stale salt fish. I can liken it to nothing so much as to the odour with which our common snake (*Natrix torquata*) assails the olfactories of the zealous herpetologist who ventures on its capture in the breeding-season, and who is more to be pitied than the captive, as he vainly tries with soap and water to purify his hands and clothes from the slimy exudation that bewrays them. The smell of the plant is nearly as difficult to be got rid of, and I recollect once sending a specimen to a female friend of my own, who was so annoyed by its offensiveness, that my well-meant contribution to her collection of plants, instead of being received with thanks, was thrown by her out of window without farther ceremony. Gerarde (em. p. 327) is pleased to be facetious on the subject of this plant, but the nature of his humour is probably of such a kind as makes it safer to take its excellence for granted, rather than more fully to appreciate its point by a too nice inquiry into the import of his remarks. This, unlike the generality of small annuals, is very persistent in its several stations.

Chenopodium polyspermum. In low, damp, muddy places, waste ground, gardens, about dung-hills, and even in woods. By no means unfrequent in the Isle of Wight, though it cannot be called here a common plant, unless relatively, as compared with most other species of the genus with us. Unlike the last, it is fugacious in its habitats, seldom remaining long in one station without becoming scarce, or vanishing altogether to appear elsewhere. Cultivated fields near Ryde, Binstead, and, I understand, a weed in the garden at Pondwell. Frequent on old manure heaps at Sandown. About Shanklin, in the garden of the Shanklin (late Williams's) Hotel. In a wood (Shambler's Copse) near Cowes. Waste ground betwixt Yarmouth and Shalfleet. By the lower farm at Ningwood. Merston, plentifully, 1847. Abundant in 1844 in several places, as Godshill, Newchurch, Shanklin, Wraxall, America, &c. Northwood Park; Miss G. Kilderbee !!! East bank of the Medina below Copping's Bridge (Newport); Mr. W. D. Snooke (Fl. Vect.): and in various other places occasionally. I am unable to state its frequency in mainland Hants, but as far as my observation has yet extended, it appears to be rarer considerably than in the Isle of Wight, as I have seldom lighted on it myself, nor have I but in one instance received notice or specimens from others. At Iford, near Christchurch, October 2nd, 1849. Heron Court; Mr. J. Curtis in litt. and Brit. Entom. vol. ix. tab. 402, ex loco. It is not mentioned in Mr. Notcutt's List of the Plants about Fareham (Phytol. ii. p. 201), but is probably dispersed perhaps sparingly throughout the county. The var. acutifolium, E. B. xxi. t. 1481, is the prevailing, if not the only form of this plant with us in Hants.

Chenopodium urbicum, var. *intermedium*. Next to the following (*C. album*) this is by far the most common species of the genus in Hants, at least in the Isle of Wight. Its usual stations are on dung-hills, rich waste ground in the outskirts of towns (hence its specific name) and on village greens, but most particularly in and around farmyards. Abundant at Troublefield and Ninham farms, near Ryde. Common on St. Helen's Green and at Sandown, about the cottages and farms. At Ventnor and Niton. By Yafford Mill. Grange by Brixton. At Adgeton, Arreton, Chillerton, Hasely, Brook, Compton, Palmers, Upper Morton, Yaverland, Rill and other farms, often in great abundance. Probably frequent throughout the county, though I have myself noticed it as yet in but few places on the mainland. At Blashford Green, Ibbetley, and elsewhere betwixt Ringwood and Fordingbridge. By Sowley farm. Wallington (near Fareham); Mr. W. L. Notcutt! Var. *β*. Spikes ramose, subcymose; upper leaves nearly entire. In the farm-yard at Sheepwash, by Appledurcombe, and in a lane close to Yaverland farm. At Yafford Mill, near Shorwell. The Rev. G. E. Smith has observed the same variety in Sussex, but I suspect it to be a monstrosity, and to arise from a diseased state of the plant, having never seen this form of inflorescence on large and vigorous individuals, but only on small discoloured and unhealthy ones. The inflorescence in this variety resembles that of C. murale. It has come up in St. John's garden, near Ryde, from seed, I believe, of the common form, nor is the transformation of the inflorescence from the simple spiked to the subcymose character, complete in these casual specimens.

Chenopodium album. In cultivated and waste ground, fields, gardens, on rubbish, dunghills, &c., most abundantly everywhere. Var. β. viride, C. viride, *L.* Leaves oblong-lanceolate, more or less (often quite) entire, inflorescence cymose, racemes nearly leafless, straight or recurved. Common. Obs. — C. ficifolium must be expunged from the Hampshire flora, its occurrence at Wallington, near Fareham, as given by Mr. Notcutt in his Catalogue of the Plants of that vicinity (Phytol. ii. 211), being, as Mr. N. informs me, a mistake on his part. C. opulifolium, a species too closely, I should fear, akin to C. album, and differing chiefly in its broader, blunter, almost three-lobed leaves, will probably be found in England eventually.

——— *murale.* In waste and cultivated places, kitchen gardens, under walls and in bye-streets of towns, on dunghills, rubbish-heaps, &c., but not common. Rare in the Isle of Wight. At East Cowes in several places; sparingly. At Yarmouth and Ningwood. In Northwood Park; very sparingly, September, 1844. Rather frequent at Newchurch, in the neglected cottagers' gardens, and at the vicarage. Under the rocky cliff on the right-hand side of the road from St. Lawrence to Niton, a little beyond the turning off (at the shoot) to Whitwell, in plenty, growing with Beta maritima; Miss O. Hadfield! I am induced to believe there must have been some mistake in the locality, as, although the specimen is an indubitable one of C. murale, I have never seen this species growing beyond the bounds of cultivation, or at least remote from the abodes of man. The station in question is under a mass of rock, high up on the steep bank above the road, in a perfectly wild, retired situation, and on visiting it for the purpose of verifying the correctness of the habitat, I found no trace of the Chenopodium, whilst of the Beta there was still abundance. At Newport, Freshwater, Sandown, &c., in plenty; Mr. W. D. Snooke (in Fl. Vect.); but there is, I think, no doubt that C. urbicum was the plant intended in that little work, as C. murale has never been seen by me in the alleged places, and so far from being plentiful, the plant is remarkably sporadic with us wherever it does occur. Apparently not very unfrequent along the coast of the mainland, and its two adjacent islands of Portsea and Hayling. In the latter I found it last year and this, in considerable plenty on a bank of sea-weed, close behind the ferryman's house, opposite Cumberland Fort, and have picked it in the former at Milton. In considerable plenty on an extensive plot of ground about half a mile or less inland from Southsea Castle, evidently former garden ground, but now waste, and railed off for building-lots, growing with abundance of Mercurialis annua, and a number of plants of the variety of Datura Stramonium with purple stems and flowers (D. Tatula, *L.*), which last I had never seen naturalized in England till now, November 5th, 1849. At Clayhall, betwixt Gosport and Alverstoke. At Lymington, Christchurch, and at Avon, near Sopley, 1849. Lower Quay, Fareham; Mr. W. L. Notcutt! A widely-dispersed species, which I have gathered at New York, and notably about Norfolk, in Virginia. C. hybridum may with reason be expected in the county. Dr. Salter finds it in his father's garden at Poole, but I should think it had become naturalized there through casual introduction. Also native to America as well as Europe: I have collected it near Montreal, and in Canada West.

Chenopodium rubrum. In similar places with the last, but a paludal and even sylvestral species occasionally, not as that merely ruderal, septal or viatical, occurring in low muddy or wet sandy places, salt-marshes or margins of rivers and ponds; more commonly, however, in rich waste ground about houses, farms, and on dunghills, &c. A very rare species in the Isle of Wight. On a manure-heap by Gatehouse farm, a few miles from Ryde, sparingly, October 7th, 1844. In considerable plenty on an old compost-heap by Ningwood Green farm, near Shalfleet, August 1st, 1845. In a truly wild and natural station on the half-dried-up muddy edge of the pond near Hardingshoot farm, in great plenty, September 30th, 1844. In the two former stations the plant is now, I believe, quite extinct, but it may be found with certainty every year at Hardingshoot, in tolerably dry seasons, when the water has left the flat margin of the pond uncovered, but in a most remarkably dwarf state, the largest specimens being under two inches high, and many can be covered with the tip of the finger. The stems are either quite simple or branching from the root, and prostrate on the mud to the extent of one, two, or even three inches. When sown or removed into a garden, the plants are developed into the usual erect form of the species as seen in waste ground, or on dunghills. Freshwater Gate; Mr. W. D. Snooke in Fl. Vect.; but I have never seen it there, nor have I any station to give for this species as yet on mainland Hants, although its occurrence there can hardly be doubted. This species has been separated from Chenopodium and removed to Blitum, but it has neither the habit nor the enlarged succulent perianth of that genus; the stamens vary from one or two to five (mostly, I believe, three), the seed is partly vertical, partly horizontal, as in some other true Chenopodiums, of which it has perfectly the habit and appearance, closely approaching C. urbicum, which is often mistaken for it. C. botryoides, a species I have no practical acquaintance with, should be looked for along the sea-coast.

Chenopodium glaucum. In low, rich, waste ground and on dunghills, &c.; very rare. Abundantly on a piece of low waste ground at Thorley, near Yarmouth, just outside of Thorley farm-yard, near the church, betwixt the churchyard and the high road, 1837. On an old manure-heap in the park at Swainston, with stems quite procumbent, August, 1839, sparingly. Still there, and in somewhat increased quantity, in September, 1842, but lost, by the removal of the heap, in 1843. Springing again in 1844 in some plenty from the ground where the heap had stood, but not since observed. At Thorley this rare British species is fully established, and may be obtained every year, but is sometimes covered under the compost from the adjoining farm, which is periodically deposited on the spot, and then the plant can only be gathered in small quantity on the contiguous muddy soil, but when the bulk of manure is small, the vacant space is covered with this Chenopodium. I am not aware of any station for the present species on the mainland of the county. In the specimens from this island I find the central flowers of each cluster or glomerule elevated on a very short and thick peduncle, and bearing a horizontal seed, the lateral flowers clustered around the footstalk of the central one, and carrying vertical seeds.* Perianth three or four-cleft. I found this species in moist spots in the Navy-yard at Philadelphia, and on waste ground in the city itself: it had not, I believe, been previously noticed in the United States.

——— *Bonus-Henricus.* In waste ground, about towns, on village-greens, by road-sides, in churchyards and about farm-houses; by no means common in the Isle of Wight; much more frequent on the mainland of the county. Farm-yard at Ninham, near Ryde. Near Quarr Abbey, very sparingly. Farm-yard at Apse, near Shanklin, abundant. At Rew farm, near Appuldurcombe, and abundant by the road-side opposite the same. At Wellow, Arreton, Shanklin, Gottens, and elsewhere in the island, occasionally. At Bishopstoke; Blackmore farm, Wolmer Forest. By the church at Crux Easton, and at Kingsclere. At Hambledon in several places; Petersfield; near farm-houses betwixt Clanfield and East Meon, in plenty; Selborne village; Binstead, near Alton; Blashford, near Ringwood, on the road to Fordingbridge. Fareham; Mr. W. L. Notcutt!!! Warnford; Rev. E. M. Sladen. About the Priory (Selborne), plentifully; Mr. Wm. Pamplin. Andover; Mr. Wm. Whale; and I have every reason to believe frequent throughout the county. This plant has the habit both of Amaranthus and Spinacia, and is familiarly known as "wild spinage" in the Isle of Wight, where, however, if it was ever used as such, as it still is in some parts of the kingdom, no tradition of its employment as a pot-herb here has survived its disuse. Better entitled, from its peculiarity of habit, perennial duration, and very elongated stigmas, which are sometimes as many as four or five, to generic distinction. It formed the genus Agatophyton of Moquin-Tandon, but that author in the Prodromus refers it to Blitum.

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* There would seem to be no certainty in the position of the seeds in this species. Koch found them more frequently horizontal than vertical, just the reverse of my own experience.

Beta maritima. Abundant, often to profusion, in muddy salt-marshes, on old walls, chalk cliffs, banks and waste ground along the sea-shore, or even a little inland, on rocks, &c.; on most parts of the coast, both of the island and main. In great plenty by the shore between Springfield and Sea View, and elsewhere near Ryde. Common at Cowes and Yarmouth. Profusely on the ledges or terraces of the cliffs betwixt Freshwater Gate and the Needles, called meads and greens by the cliffsmen (see Orobanche Picridis, iii. 604). At the foot of the rocks of galt or firestone that hem in the Undercliff on the north, as in the Pelham Woods, behind St. Lawrence, many hundred yards from the sea-shore, and some two or three hundred feet above it, in great plenty. Common, I believe, almost everywhere on the opposite coast, in Hayling and Portsea Islands, at Porchester, &c. In common with the last, usually called "wild spinage" by the poorer classes, but also beet, and is by them gathered from the shore, boiled, and eaten as greens with the pork or bacon that forms so constant an article in the dietary of our Hampshire peasantry. Dr. Salter remarks to me that the flowers of the sea-beet possess a powerful fragrance, like that of Clematis (*C. Flammula*) and new hay conjoined. He has also perceived the same agreeable odour in the flowers of black mustard (*Brassica nigra*).

Salicornia herbacea. On muddy salt-marshes, shores and inlets of the sea, abundantly. On each side of the Medina above Cowes. Shores of the Wootton River and of the Yar. Salt-marshes at Brading, Newtown, &c. Var. β. procumbens; stems prostrate. S. procumbens, *Sm.* Shores of Yarmouth harbour, and abundantly with *α.* in the Newtown salt-marshes. Abundant on the coast of mainland Hants, where, as in this island, it grows even in the brine in the high state of concentration in which the latter is found in the shallow rectangular reservoirs (brine-pans) into which the sea-water is admitted for evaporation by the sun's heat before it is pumped into the boilers for granulation, which brine is nearly at the point of saturation when taken from the pans. "A large state of this plant, one to two feet high, with a woody stem, and much resembling S. fruticosa, *L.*, occurs in the salt-marshes near Portsmouth. Professor Don, however, considers it merely as a form of S. herbacea;" Dr. Macreight, 'Manual of British Botany,' p. 195. This I have not hitherto fallen in with, but a great deal of the mainland line of coast is still unexplored by me, and even the shores of Portsea Island have been very partially examined in person. If our S. radicans (see below) be merely, as Moquin-Tandon marks it, a variety of S. fruticosa, *L.*, may not the large form found by Dr. Macreight be the true fruticosa of Linnæus, notwithstanding the opinion to the contrary of the late and much lamented Professor Don, who, with all his extensive knowledge, was occasionally hasty and careless in pronouncing on species submitted to him for his decision?

Salicornia radicans. In similar situations with the foregoing, but far less generally abundant. On Ryde Dover, and by the Medina above West Cowes, on the edge of the little salt-pools left by the ebbing of the tide. Plentiful in Newtown salt-marshes. "Abundant near Cumberland Fort (Portsea Island) and Anglesey" (near Gosport); Dr. Macreight, Man. Brit. Bot. Shore at Cams (by Fareham). The Salterns (Fareham); Mr. W. L. Notcutt. This species is referred by Moquin-Tandon to his genus Arthrocnemum (Monogr. Chen. p. 111), of which Salicornia fruticosa, *L.*, is the type, and our S. radicans considered as a variety of that plant by him. According to Moquin-Tandon Arthrocnemum differs from Salicornia in the want of a wing or border to the perigone, and in the semiannular embryo (in Salicornia the embryo forms a complete ring around the albumen). But besides that the membranous appendage above mentioned is very slight and inconspicuous in Salicornia, and the incompleteness of the annular curvature of the embryo a character of degree, and one very troublesome to recur to in practice, the habit of these genera is too similar to warrant the establishment of Arthrocnemum on the slender distinctions afforded by a few Salicornias which barely offer even good sectional characters.

A highly curious instance of the strongest possible analogy in form, aspect and habit between plants widely separated in natural affinity, is exemplified in the Salicornia of our salt-marshes, and a West

Indian plant, Batis maritima, which, like the former, is exceedingly social, and covers the muddy margins of the lagoons and salt creeks in Jamaica with a dense under-growth of yellowish green, visible at a great distance. So similar is the Batis in external structure, aspect and habit to a Salicornia, that on first meeting with it, I collected specimens without the slightest suspicion that I was gathering anything but a species of glasswort, and even supposed it to be only our British S. herbacea, with the stems rendered very luxuriant and arching by difference of climate. Yet Batis maritima has no real relationship to Salicornia, but is placed by Lindley (The Vegetable Kingdom) as a tribe or suborder (Batideæ) of Empetraceæ. The plant is diœcious, and the structure of the ripe fruit said to be unknown to botanists, but from having no books to refer to at the time, and moreover completely deceived by appearances into the belief of its being only a Salicornia, I lost the opportunity afforded me of examining a genus of uncommon botanical interest, for in the dried state the parts shrivel and become undistinguishable.

In the subjoined list of Atriplices indigenous to this county and island, I am compelled to acknowledge my ignorance of the recent species by which the genus in Britain has been augmented through the labours of Mr. Babington; ignorance not arising from any impression of the futility of his praiseworthy exertions to elucidate this most perplexing tribe of Chenopodiaceæ, or to save myself the trouble of following the teaching of that able botanist in the detailed descriptions he has given us in the Manual, but simply through inability to unravel the knot of difficulties which attend the discrimination in their multitudinous forms and varieties of A. erecta, prostrata, patula, deltoidea and rosea, and from a conviction that British and foreign authors apply the same names to very different plants, and that the nomenclature is still in a very shifting and uncertain state abroad as well as at home. For these reasons I prefer waiting patiently the result of farther researches by those who are willing to devote their time to a task of such labour and difficulty, rather than hazard giving to our Hampshire species names which may hereafter be discovered to have been falsely imposed.

Atriplex nitens. This species must be expunged from the list of Hampshire plants, so far as concerns its right to a place in the floral census of the county, either as indigenous to or completely naturalized therein. I have lately met with it in several and distant parts of the county, and clearly ascertained it to be still an object of cultivation in the gardens of the poorer classes under the name of French spinage, from whence it sometimes escapes, or is carried out with refuse or manure into the adjoining fields and waste places, but is nowhere persistent with us in such situations. At most, therefore, it can only merit a passing notice with Reseda alba, Nicandra physaloides, and some other foreigners, transitory outcasts or stray subjects of our Flora hospita.

Atriplex littoralis. On the muddy beach, upon banks and along ditches by the sea, in salt-marshes, &c., not uncommonly. On the sea-beach betwixt Ryde and Binstead. By the Medina above Cowes at Medham brickfield. Most abundantly along the shore betwixt Springfield and Nettleston Fort. Under the shore nearly below Bouldner, by Yarmouth. In Thorness Bay and Newtown marshes. Coast near Cowes; and most other parts of the coast; Mr. W. D. Snooke (Fl. Vect.). I have not attended to the distribution of this species on the opposite mainland coast, but suppose it to be there pretty general. Betwixt Southampton and Netley. The shore (Fareham) everywhere; Mr. W. L. Notcutt.

——— *marina.* With the last, and possibly not rare, but having till lately been accustomed to look on it as a toothed-leaved variety of A. littoralis, I find no stations recorded for it apart from the last. Under the shore nearly below Bouldner, with A. littoralis, and I think seen elsewhere in the island. Probably not unfrequent on the opposite mainland coast. Hayling Island. Perhaps not specifically distinct from A. littoralis, but the closed perigone in opposition to the open one (when in seed) of the latter may, if constant, be allowed to weigh in favour of their separation.

——— *angustifolia.* In waste ground, fields, gardens, by roadsides, &c., very common everywhere. A. erecta is no doubt a native of the county and Isle of Wight, as Mr. Babington says it is common on cultivated land. With my present imperfect knowledge of these protean plants, I probably confound this and the next together.

——— *patula.* In similar places with the last; universally, if I do not mix it up with other forms or species of Atriplex. A large straggling, prostrate or decumbent plant, with broadly triangular or hastate leaves, more or less white or hoary with crystalline efflorescence, is very common along the coast by high-water mark, as on the shores of Brading harbour, near Carpenter's, &c., along the shore betwixt Ryde and Binstead, and plentifully on the shore north of Shanklin Chine, &c. This I have not yet carefully examined, as it perhaps deserves, having been accustomed to esteem it a sea-side form of A. patula, and now suppose it may be the A. prostrata, *Bouch.?* of Babington's Manual. If so, it would seem from Mr. B.'s account to be rare in Britain; in this island at least it is very abundant. I suspect it is the A. hastata of Wahlenberg's 'Flora Suecica,' 2nd edition, p. 683, and perhaps of Linnæus himself, Fl. Suec. edit. 2, No. 921.

Atriplex rosea (Babington's Man.), scarcely of Linnæus? or the continental botanists. Waste places, &c. I believe very common. Shore between Ryde and Binstead. Abundant on the Dover, Ryde, and betwixt Ryde and Nettleston; Mr. C. C. Babington !!!

——— *laciniata.* On sandy sea-shores; not common. On the Spit at Norton, opposite Yarmouth, in tolerable plenty. On the extreme point of the Spit at St. Helen's; sparingly. In Ventnor Cove some years ago, but I doubt if it can be found there at present. Rather frequent on the shore betwixt Shanklin and Sandown, August, 1844, but its footing on that part of the coast is very precarious (see remarks on Lathyrus maritimus in a preceding part of these Notes). Shore between Sea View and Brading; Mr. Wm. Wilson Saunders. I have not remarked this plant as yet on the coast of mainland Hants, but cannot doubt of its existence there. It were to be wished that our other species of Atriplex were as well marked and invariable in character and appearance as the present, which approaches the genus Halimus somewhat in the silvery scaliness (not mealiness) of the leaves, and in the rounded, scarcely angular or furrowed, almost woody stems of a pale yellow or reddish colour. The leaves, which remind one by their shape of the great shrubby orache of the gardens, A. Halimus, *L.*, in common cultivation here for sea-side fences, and which Moquin-Tandon retains in this genus, emit the fœtid odour of Chenopodium olidum, but in a far less degree. I remarked the fructiferous perigones to be commonly pierced by some insect unknown to me, and the enclosed seed devoured by it.

Halimus portulacoides. In muddy salt-marshes, and especially on the edges of salt pools, creeks, ditches, and tide-rivers, also on dry chalky cliffs at a considerable elevation above the shore. An exceedingly abundant shrub on every part of the Hampshire coast suited to its growth. Banks of the Medina above Cowes in plenty, and along the Wootton Creek. Abundantly in Gurnet Bay, but of small growth there. Fringes the marsh ditches and edges of the brine-pits at the salt-works at Newtown in luxuriant profusion. By the Yar at Norton. On the ledges of the lofty chalk cliffs called *meads* and *greens*, between Freshwater Gate and the Needles, in various places, as on the Main Bench, Rose-hall Green,* and above the west end of Scratchell's Bay, &c., in great abundance. Yarmouth, and Brading harbour, in great plenty; Mr. W. D. Snooke, Fl. Vect. !!! Profusely in Hayling and Portsea Islands, and in almost every salt-marsh ditch and muddy creek along the entire line of coast from Emsworth to Christchurch. I have never seen the Sea Purslane with the leaves acute, as they are drawn in E. B. It is possible, though I think not very probable, that H. pedunculata may be found in salt-marshes on the Hampshire coast. The species has hitherto shown itself an extreme instance of Mr. Watson's Germanic type of distribution, and would appear to be exactly coextensive in its range with another British species, the most perfectly and purely eastern plant I know of in this country, I mean Hippophäe rhamnoides.

Rumex maritimus and *R. palustris.* One or other, if not both these species are still desiderata to the Hampshire flora, but it is to be hoped will not long remain so. I find the following entry in pencil, without date or comment, in my MS. Flora, which I had overlooked till this moment: "One or other of these (R. maritimus or R. palustris) Mr. G. E. Smith found at the entrance to Shorwell." I now remember to have searched for it there a few years back without success, and I must trust to my reverend friend to confirm the truth of this statement, or correct it if erroneous. Although a local and generally scarce species in Britain, there is nothing to discourage the idea of the probable existence of both within our limits, and they should be looked for in marshy meadows, the sides of pools, and other low, moist situations. One or both have occurred in the conterminous counties of Sussex and Dorset, and it is not likely the intermediate one of Hants should want them altogether.

——— *conglomeratus (R. acutus,* Sm.*).* Common everywhere on waste ground, about houses, by road-sides, and in damp pastures, &c.

——— *sanguineus.* Var. β. viridis. Common in most places by road-sides, in woods, and shady, moist situations. The variety with bright red veins to the leaves I have not yet seen in this county and island, but they are often partially coloured in the commoner form above given.

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* For an account of these shelves or ledges see Orobanche Picridis in a former part of these Notes, at p. 604 of vol. iii. The distinction made by the cliffsmen between *meads* and *greens* is not correctly stated in the foot-note. Such ledges as are covered with a miscellaneous vegetation, like that described in the note, retain the latter name, whilst meads are understood to designate similar projections that are clothed with grass only.

Rumex pulcher. In dry waste places, pastures, borders of fields, by road-sides, under walls, on hedge-banks and in churchyards, by no means unfrequent over the entire county and Isle of Wight. Rare about Ryde. By Quarr Abbey, but sparingly. Border of a corn-field above Sandown Bay, and on the virgin turf of Brading Down near its summit and base, in considerable plenty. On the shore at Bembridge. At Bonchurch and elsewhere in the Undercliff. In various parts of Freshwater Island, as at Freshwater Gate, &c. Very common about Yarmouth; abundant betwixt Yarmouth mill and the town. Particularly partial to churchyards, both in this island and on the main, as in Calbourne, Carisbrook, Newchurch, Freshwater, Thorley, Brixton, Binstead, and most other churchyards in the island, sometimes very abundantly. Occasionally on the tops of our highest downs on the short native turf, but by far the most frequent in the lower and warmer country, being quite a southern species, and probably sensible to severe frost, since in the interior of the European continent, as Germany, it follows the depression of the isothermal curves to the south-east, and in that country barely attains the parallel even of the Isle of Wight. Yet with us it is hardly less common inland than in the mitigated climate of the coast, as I find it dispersed over most parts of the county I have yet visited. Meadows at Porchester, Porchester Castle, sparingly. Havant churchyard. Near Andover. Titchfield. Petersfield and Hambledon churchyards, &c. Fields near the workhouse (Fareham); Mr. W. L. Notcutt. The Fiddle Dock is abundantly naturalized in some parts of the United States, but only in the south, doubtless from inability to resist the northern winters; I found it quite a weed in pastures and waste places at Charleston, New Orleans, and other southern cities. The epithet of pulcher, to judge by the ungraceful rigidity, straggling habit and general homeliness of its appearance, must have been given to this species in a mood of jocular antithesis; a less attractive weed could hardly have been selected on which to bestow the praise of beauty than this.

——— *obtusifolius.* In meadows, pastures, waste places, by road-sides, &c., extremely common.

——— *pratensis.* In damp meadows and pastures, by way-sides and in marshy places; probably not rare in the county and Isle of Wight, but it is, I confess, a species I do not well understand, and I dare say have repeatedly overlooked or regarded it as R. crispus or obtusifolius. First gathered near Newtown, June 30th, 1842, in company with Mr. Borrer, who drew my attention to it. On Ryde Dover, September, 1843; *Id. !!* In the Cyperus meadow at Apes Down, between Carisbrook and Yarmouth, August, 1844; *Id.* The plant has since been lost sight of by me, and neglected, but renewed inquiry and examination will doubtless detect it on the mainland of the county, and in other places on this island.

Rumex crispus. Common everywhere in similar places with the foregoing species of the genus.

——— *Hydrolapathum.* In wet meadows and pastures, in, and on the banks of rivers, ditches and ponds. In several parts of the Isle of Wight, but very local, from the paucity of congenial situations for its growth. In meadows along the valley of the East Yar, towards Alverston, &c., in plenty, and by the same stream at Yarbridge. Marsh at Easton, Freshwater Gate. Very common, if I remember rightly, in the damp valley of the Medina about Rookley, Cridmore, and elsewhere to the south of Newport, but I find no special entry made of these stations for a plant so generally frequent in England as this. Abundant in many parts of mainland Hants, and I believe universally distributed over the county. At Bishopstoke. Water meadows about Winton, at Kingsworthy, &c. Titchfield river; Mr. W. L. Notcutt.

——— *Acetosa.* In meadows and pastures, especially where the soil is rather poor and moist; abundantly.

——— *Acetosella.* Everywhere plentiful in fields, meadows, pastures, waste places, heaths, and on hedge-banks, particularly abundant on dry, light sandy soils.

Polygonum Bistorta. In damp meadows and pastures; rare ?* Not yet found in the Isle of Wight in a state or in situations that could entitle it with propriety to form an item in the floral census of the county. Naturalized as a weed in the kitchen-garden at Westridge, near Ryde. Wet meadow near the pond at Old Park, Undercliff; abundantly, June, 1838; Mr. Albert Hambrough !!! Nearly naturalized from the garden of which the pond forms as it were a part. Truly wild in damp meadows on the mainland, although certainly not common. I found it some years ago in great plenty in a moist meadow near North or South Stoneham, a few miles from Southampton, in full flower in August, but the memorandum of the exact locality and date is at this moment mislaid; these documents not then being preserved with the same method and regularity as at present, and entered in a book kept expressly for the purpose, like the Sybilline leaves, I sometimes find not to be consulted when wanted for reference. Formerly by the stream side (Itchen river) above Deangate Mill, Winton (close to the city on the north side, at the entrance to Winnal water-meadows); Dr. A. D. White: but not now to be found there, as I have ascertained myself, and the station might perhaps be deemed suspicious from its vicinity to the town. Warnford; Mr. Vickery: and Cheriton; Miss L. Sibley. Near Gill Copse (Fareham); Mr. W. L. Notcutt!! Probably genuine stations, but I cannot answer for their being so. I found, September 17th, 1848, a single specimen in a meadow betwixt Selborne and Oakhanger, but certainly wild and still in flower.

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* It must have been remarked that throughout these Notes the rarity of plants is for the most part indicated interrogatively, seldom positively, or without a sign of doubt. As regards the Isle of Wight, I can with confidence give the absolute or relative infrequency of the species composing its flora from many years of observation over its limited surface, but with respect to the far more extensive area of the county at large, of which the Isle of Wight forms hardly more than a fifth part, if even so much, my personal acquaintance with the vegetation of mainland Hants is yet too confined and imperfect to enable me to pronounce any species to be certainly rare because it has seldom presented itself to view during excursions, most of which have been made within these last two years, and embrace a very small field of observation compared with that remaining for scrutiny. The experience of the past two summers has greatly reduced the amount of species which till lately I had supposed quite rare, or at all events very local.

Polygonum amphibium. In ponds, ditches, marshes, and low wet meadows. Frequent in the county, but not so in the Isle of Wight, and very rarely flowering in the latter. Var. α. natans. Floating; leaves broadly oblongo-lanceolate, smooth and shining. Var. β. terrestre. Erect; leaves lanceolate, and as well as the stipules hairy on both sides. The former is certainly rare in this island, at least in the flowering state. In a small pond near the road-side, just out of Kingston, on the way to Shorwell, in plenty and flowering freely. A most conspicuous ornament to the pond on Petersfield Heath. Frequent, I have no doubt, in various parts of the county, though I have no memoranda to that effect. The var. β. occurs in several parts of the Isle of Wight in plenty, but very rarely flowering. Abundantly in a hollow by the road-side on the left hand, a few hundred yards beyond the turnpike going from Yarmouth to Shalfleet. In Sandown marshes, and at Freshwater Gate. Area of Quarr Abbey, &c.

——— *lapathifolium*. On rich cultivated or waste ground, dunghills, &c.; frequent in the Isle of Wight, and as far as my observation has gone, over the rest of the county. Possibly only a permanent form or race of P. Persicaria, but possessing characters sufficiently definite and constant to support its claim to specific distinction with considerable plausibility. The very obscure P. laxum may occur in the county, but I am by no means desirous of swelling the Hampshire Flora with dubious, false, or book species, although anxious not to overlook or omit mentioning as *varieties* when they occur both, this and other such quasi species, leaving to future compilers of general or local floras who may be pleased to avail themselves of my labours, to exalt them into specific notoriety if they shall see fit to do so.

Polygonum Persicaria. In low rich moist ground, on ditch-banks, dunghills and waste or cultivated land, very common.

——— *mite.* A solitary specimen of this very apocryphal species was picked by the Rev. G. E. Smith, September, 1838, in a lane between Apley and St. John's, near Ryde !! I have not succeeded in finding it there since, but have reason to believe that it grows intermixed with P. Persicaria and P. minus in the marshes of Sandown Level.

——— *Hydropiper.* In moist places by road-sides, wet meadows and on ditch and river banks, &c.; abundantly almost everywhere. The grassy sides of our damp shady lanes and bye-roads are usually fringed with this species from August to October.

——— *minus.* In similar places with the last, also in moist gravelly depressed spots on heaths, and bare places on moory, peaty ground. Very rare in the Isle of Wight. In great profusion in the little drains intersecting the meadows on Sandown Level, betwixt the high road from Ryde and Brading to Shanklin, &c., and Lake and Blackpan Commons, extending up the valley of the East Yar, in front of the latter, growing intermixed with P. Hydropiper, and I suspect also with P. mite. First found there by Miss S. Lovell, in whose herbarium I saw it marked P. Hydropiper, and who kindly conducted me to the station, September 23rd, 1847. The Sandown plant is the upright variety of E. B. and of the 'Flora Londinensis.' Apparently frequent on the moorlands of the Hampshire forest districts, where it occurs abundantly, and usually with perfectly depressed or prostrate stems, of a deep red or purple colour, on bare damp spots of black vegetable soil. In this state I find it in several places on Wolmer Forest, as betwixt Blackmore farm and the great pond, and elsewhere in the vicinity of the latter. On Petersfield Heath. Close to Ringwood, and very abundant at Blashford, about a mile north of that town, at both ends of the village, in wet, depressed, pasture ground by the road-side, September 29th, 1849. Abundant on Short Heath, near Selborne; Dr. T. Bell Salter !!! The variety with prostrate stems is the only form I have yet fallen in with on the mainland of the county.

Polygonum aviculare. In some one or other of its multitudinous forms a most abundant weed throughout the county and Isle of Wight, in almost all soils and situations. Var. *α.* segetale; stems erect, sometimes prostrate, more or less (often copiously) branched, very slender, filiform and wiry, flowers remote, leaves small, narrow lanceolate, acute. Abundant in corn stubbles after harvest: the Wire-weed of the Isle of Wight. Probably the P. virgatum of Loiseleur Deslongchamps, as suggested by Babington (Man. p. 275). Var. *β.* Stems short, thickish, prostrate, much branched, spreading mostly in a circular form, flowers and leaves very small, crowded, the latter elliptic lanceolate or oblong. In sandy ground by the sea. Betwixt Ryde and Sea View, October 2nd, 1845. I believe not at all uncommon on our Hampshire shores, and certainly a remarkable variety, but having neglected to make further notes of its occurrence, I will not trust to memory for additional localities. Were it not that I hesitate to give utterance to a word of such sesquipedalian length, I would have headed this last form herniarioides, for so strong is the resemblance it bears to Herniaria glabra or ciliata, and their places of growth so analogous, that I have more than once been cheated into the momentary belief that I had rediscovered the Herniaria formerly found, according to Martyn, at Portsmouth. The first variety is not less remarkable, and reminds one strongly of Bupleurum tenuissimum in its habit of growth. A much branched, large and prostrate form, with large opaque fruit (P. littorale, *Link ?*), occurs here and there on our island sea-shores (see next species below); and lastly we have another state of this most multifarious plant, with remarkably large and broad obovate leaves, which grows by the path-side above the cliffs of Sandown Bay and elsewhere, and comes very near the American P. erectum, if not identical with that plant, reduced by Dr. Gray (Man. of the Bot. of the Northern United States) to a variety of P. aviculare.

———— *Raii.* On sandy sea-shores; very rare ? A doubtful native of the Isle of Wight. On waste ground opposite Plumbley's Hotel, Freshwater Gate, and at Brook, I found what I believed to be this species some years since, but having preserved no specimens from these localities, I am at present unable to confirm it as an inhabitant of the island. I have a fine specimen of a plant labelled P. Raii, which I found on the shore betwixt Sea View and the Priory, near Ryde, July 26th, 1837, with a reference to the figure and description of that species in E. B. Supplem. iii. t. 2805, appended, as if carefully compared therewith, and found identical. But on examining this specimen afresh, I find the nut dull, opaque, brown, and copiously covered with minute points or granulations, and therefore not corresponding to the account given by Mr. Babington of the fruit of P. Raii. In all other respects, and in the nut exceeding the perianth in length, it perfectly agrees with P. Raii. The root, and base of the much-branched, prostrate stem in my specimen has a woody, perennial look, and reddish brown colour. I suppose it can only be the maritime form of P. aviculare (P. littorale, *Link ?*), unless it may be that the fruit becomes finally dull and striate by pressure and keeping, as I can hardly believe myself to have overlooked the most material character in determining this species from the commoner P. aviculare. Near Muddiford, by Christchurch; Mr. Borrer: from whence the specimen in E. B. was drawn.

Polygonum maritimum. On sandy sea-shores; extremely rare, and there is every reason to believe extinct in the only known Hampshire station. Discovered upwards of a dozen years ago by Mr. Borrer, on the sandy shore between Christchurch or Hengistbury Head and Muddiford, but in a situation that exposed it to speedy destruction from the encroaching waves! I searched for it this autumn when exploring the neighbourhood of Christchurch, and found, as I had expected,—not the plant, but the fulfilment of Mr. Borrer's prediction concerning it. We may, however, reasonably hope for its reappearance on the same or some other part of the Hampshire line of coast. Mr. H. C. Watson, whose caution and moderation in adopting new species entitles his opinion to the greatest weight, and who is much in the habit of subjecting such recent promotions to the *ad crucem* test of protracted cultivation, is perfectly satisfied that P. Raii is hereditarily distinct from both P. aviculare and P. maritimum. It would ill become me to set up a decided opinion against authority like those of the three able botanists best acquainted with these species, backed, as their views are, by the experimental results of Mr. Watson, yet I cannot divest myself of a lurking suspicion that whatever may become of P. maritimum as a species, P. Raii will hereafter be acknowledged as a variety only of P. aviculare. The ochreæ are the same in both, the length of the nut, as compared with the perianth, confessedly liable to variation (in my dubious Ryde plant it is quite as long as in the E. B. figure), the nut, it appears, may be both shining and granulated, as well as granulated and without lustre (see E. B. in loc.); the plant either apparently annual or apparently perennial, and lastly, to crown all, "there is a maritime variety of P. aviculare which *exactly resembles* P. Raii in appearance, but its fruit differs totally." (E. B. l. c. and Phytol. ii. p. 617).

Polygonum Convolvulus. In waste and cultivated ground, corn-fields, gardens, and waste places, also in damp hedges and thickets; an abundant and troublesome weed, especially in light sandy soils. Var. β. Outer segments of the perianth distinctly and conspicuously winged. Occasionally in light soils. I have gathered it running up pea sticks in the garden of the Shanklin (late Williams's) Hotel. On the Dover, Ryde; Mr. Wm. Wilson Saunders!!! where I have repeatedly found it. In a garden-hedge on Short Heath, near Selborne, 1848. In a sandy field and in garden ground at Holy Water, on Wolmer Forest, and in fields at Passwell Common, very abundant and luxuriant; apparently quite frequent on the loose sandy soil of the forest, but varying much in degree of development of the wings. Totally distinct from the following species, with which there is a risk of its being confounded by the tyro unless attention be paid to the characters laid down for their discrimination. P. Convolvulus is called Lily in Hampshire, a most comprehensive term in the county, including most herbaceous plants with climbing or trailing stems, without regard to the size or shape of the flowers.

——— *dumetorum.* In hedges, thickets, bushy places, and in newly cut copses; very rare? In the dry hedges of a sandy bye-road within a mile of Petersfield, towards Steep, a few hundred yards before coming to a public house called the Harrow, in great plenty, twining about hazel and whitethorn at intervals for a very considerable distance, August 22nd, 1849. I had always calculated on finding this truly elegant plant in the county, as it has been found in so many localities in the south of England since its first detection in this country at Wimbledon, by Mr. J. A. Hankey, about twelve years ago, and because it was observed by Mr. Jenner a few years back, abundantly betwixt Petersfield and Midhurst, beginning a little east of Rogate, and therefore not within our limits. Mr. Borrer could not find it there last year, nor could I discover a trace of it in September on any part of the road between the two towns. It is therefore evidently capricious in its seasons of appearing, if not disposed altogether to desert its former haunts. Yet this inconstancy will not explain the omission of so beautiful and conspicuous a plant from the British flora up to a recent period, because it must have been known to our leading English botanists as a native of the continent, and could hardly have been passed by as the variety of P. Convolvulus with winged angles to the perianth just described, from which it differs too materially in aspect not to excite special attention. I cannot find any allusion to P. dumetorum as a British species in the writings of Ray, Gerarde, or other old English botanists, and it is a remarkable fact that Linnæus was ignorant of its existence in Sweden, although it appears from Wahlenberg, Fries and others to be no rare plant in that country, even in the vicinity of Upsal, where Linnæus taught and resided, and was in the habit of making herborizing excursions with his pupils, accompanied by the acute German botanist Ehrhart. Yet Linnæus knew the plant well, and imposed the specific name of dumetorum upon it in the second edition at least of the 'Species Plantarum' (for I have not the first by me to consult), only seven years after the publication of the improved edition of his 'Flora Suecica' in 1755, wherein no mention is made of the plant even as a remarkable variety. Wikström (Stockholm's Flora, p. 282) tells us it was first noticed as a Swedish plant in the province of Halland, and published as such by Dr. Osbeck, in his 'Flora Hallandica,' printed in the Swedish Royal Society's Transactions for 1788, some years after the death of Linnæus, and consequently when the species was generally known and distinguished from P. Convolvulus and its winged variety. Yet Wikström himself gives many stations for it in his excellent flora of the country one (Swedish) mile round Stockholm. Facts like these are curious, as attesting the slow advances of the human mind in discovery, even when dependent on the simple exercise of the senses, involving no process of inductive reasoning or laborious research. Impulses arise, we scarcely know how, at distant and indeterminate epochs, the spirit of inquiry is aroused and pervades the nations, when discoveries of all kinds, natural, moral, and political, crowd thick and fast upon us. The high latitude attained by P. dumetorum on the continent of Europe, even along the western coasts, renders it probable that it will eventually prove indigenous to the greater part of Britain.

The American P. scandens, now referred by my friend Dr. Gray to P. dumetorum of Europe, of which it is possibly only a form, certainly presents some striking and permanent differences in the much more robust growth of its very long, twining stems, which are usually strongly tinged all over with purple; in the broader, shorter, less acuminate leaves, that approach more to cordate and less to hastate or sagittate than in ours, the lobes being more rounded; in the racemes, which are notably less elongated in the American plant, and are usually interspersed with several small but conspicuous leaves, whereas in P. dumetorum the racemes are naked, or very nearly so, the leaves, when any, minute, and little apparent amongst the flowers. The latter are, in the American P. scandens, somewhat superior, perhaps, in size to those of P. dumetorum, and the wings of the enlarged perianth project a little more beyond the apex of the seed, and are more rounded at their anterior margins, which gives the appearance of a deep notch or sinus, causing the fructiferous perianth to assume more the form and aspect of the samara of an elm than in the European species. In the size, shape, and smoothness of the finely polished fruit, I perceive no difference betwixt our own and the transatlantic plant. The American P. scandens I have always found growing exclusively in wet, or at least very moist thickets, most commonly on willows or other low bushes in swamps or osier beds, whilst our P. dumetorum affects dry as well as damp spots, and, as we have just seen, will even flourish in sandy hedgerows.

I suspect P. dumetorum and the American form or species P. scandens to be occasionally biennial. Wahlenberg says (Fl. Ups. p. 132) "Radix subbiennis," and in Fl. Suecica, i. p. 251, 2nd ed., "Radix circiter biennis et tota planta magis longæva et extensa." The appearance of these plants favours such an idea, but P. scandens from seed I collected at Philadelphia has shown itself an annual hitherto in St. John's garden, near Ryde, where in dry soil it has preserved all its original character through two generations, evincing no disposition to become P. dumetorum, which last from Hampshire seeds I shall hope to have under my eye next year, to compare with the American variety, if such it should prove really to be. Mr. Borrer tells me he has a plant labelled P. scandens from the Cambridge Botanic Garden which has proved more than annual. It is worthy of remark that although the larger plant of the two, P. dumetorum has smaller flowers at first than P. Convolvulus, it being only in fructification that they so notably surpass those of the latter in size. The seeds of P. dumetorum and scandens are smaller in all their stages than in P. Convolvulus. Wahlenberg, in his 'Flora of Upsal,' inclined to believe P. dumetorum a wood variety of P. Convolvulus,* but in his later work, the 'Flora Suecica,' he has tacitly renounced an opinion so manifestly erroneous.

Obs.—*Polygonum Fagopyrum* (Buckwheat) is excluded from the floral census of the county, being only found as an occasional and very fugacious intruder on waste ground, either strayed from cultivation, or springing from seed accidentally dropped. It should be omitted in like manner from all our general and local floras, having no plea to urge in favour of retention beyond unmeaning adherence to custom from blind submission to precedent and authority, or from a desire to increase as much as possible the apparent botanical riches of a district by a parade of borrowed wealth. See Mr. Watson's pithy remarks on this subject in 'Cybele Britannica,' vol. ii. p. 341.

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* Nihilo tamen minus vix nisi forma nemorosa precedentis (P. Convolvuli) est. Fl. Upsal. p. 132.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
November, 1849.

(To be continued.)

Some Account of a Botanical Trip in Scotland.

By JAMES BACKHOUSE, JUN., Esq.

IN the early part of 7th month (July) last, our little party, comprising my friend John Tatham, of Settle, my father and self, left the railway at Forfar to spend a few days among the Clova and Glen Isla mountains. During the excursion we visited Glen Phee, Glen Dole, the ravine of the White Water, Glen Callater, Doch-Dhu (Dhuloch), Lochnagar, the Glass Mhiel mountains and Canlochen Glen. As all these localities have been previously explored and their botanical rarities described, it will be unnecessary to occupy space in the 'Phytologist' by minute detail. I shall therefore only touch upon those points which may convey fresh information, or manifest some decidedly interesting feature.

On "The Bassies," the mountain due west of the hamlet of Clova, a form of Hieracium Schmidtii (Tausch), H. diaphanum (Fries and Bab.), with fewer and larger flowers than usual, occurs: the stem-leaf is half-clasping, if not decidedly amplexicaul. Was the *true* H. amplexicaule ever really found on the Clova Mountains by G. Don? or was it only some shaggy and strongly amplexicaul form of H. Schmidtii like this?

The range of hills comprising "Carlowie," "The Bassies" and "The Scorie," is composed of mica slate, covered on the top with granitic sand or gravel. On the granitic knolls at the top Azalea procumbens forms fine tufts. On the summit of Lochnagar, which is entirely granitic, it grows in still greater luxuriance, covering the ground in some places like a carpet studded over with exquisite little pink blossoms.

Woodsia Ilvensis still luxuriates among the cliffs of Glen Phee: a specimen (out of reach) seen by one of our party, appeared to have fronds five inches in length. We saw no trace of Woodsia alpina throughout our whole journey, strange to say; as from the records respecting the latter it would seem to be more frequent than the former.

Spergula saginoides (Eng. Bot.), Sagina saxatilis (Bab.), was very abundant in some places at the foot of the cliffs in Glen Phee and Canlochen Glen; and being in full flower, was as conspicuous as its minuteness would admit of.

Mulgedium alpinum was not in flower in Glen Dole, the plants appearing to want another fortnight to bring them to perfection.

The cliffs in Glen Dole and Canlochen were beautifully ornamented by Veronica saxatilis and alpina and Silene acaulis, which covered the rocks in many places with bright cushions and drapery of pink and blue. Saxifraga oppositifolia was rather past its best. Silene acaulis, var. *alba*, was gathered on a high rock in Glen Dole, as also Vaccinium uliginosum in fine flower.

In Glen Callater, Salix lanata was in fine order; also Carex aquatilis, var. *pauciflora*, Persoonii and rariflora. Carex vaginata was scattered upon the serpentine rocks, and below Loch Calder C. rupestris in many places seemed to form almost the entire herbage: many of the specimens were very fine and well developed. It grows exclusively on the serpentine rock, and occupies a zone about half way up the crag. One specimen of C. vaginata, far more robust than common, exhibited the curious refracted form mentioned in some botanical works; the stalk of the barren spikelet bending back at an acute angle from the uppermost bract. In this state the main stem is thick to its union with the barren spikelet, while the stalks of the fertile spikes are diminished almost to a capillary structure. Saxifraga rivularis was in the greatest abundance on the dripping rocks under the cliffs of Lochnagar, and among rocks on the west side of the mountain we were fortunate in discovering the apparently undisturbed habitation of Carex leporina. Its dense tufts were spread around us on all sides; in some places a dozen specimens or more might have been gathered at a time. After the momentary delight at the "find" had in some degree passed over, I could not help feeling regret at the irresistible annihilation of the idea of extreme rarity hitherto almost mystically connected with this humble sedge! I could not retain the delusion any longer, and was obliged to give in to the conviction that the unlikely-looking places of its choice were the main securities of its comparatively undisturbed possession and character for rarity. Next to these two treasures the most interesting object we saw on Lochnagar was a fine eagle, which sailed out of the cliff within a stone's throw of us.

In descending the Glass Mhiel to the head of Canlochen Glen we fell in with Cerastium latifolium; a very distinct plant from C. alpinum, with which it was growing. Indeed, the chief similarity seems to be in their both forming dense, matted tufts, and usually bearing solitary flowers. The corolla of our C. latifolium is but little longer than the calyx; the uppermost bracts are entirely destitute of any membranous margin, and the pubescence, instead of being soft, silky and shaggy, is bristly, rather rigid and short.

Poa montana, Balfourii and nemoralis were gathered in Canlochen Glen (?). Gentiana nivalis, Erigeron alpinus, &c., &c., were abundant as usual. A root of the former, placed under a tumbler at Braemar, expanded its deep cærulean blossom beautifully in the sunshine.

Saxifraga nivalis studded the face of one of the great crags in every direction, but the dark, hard rock seemed to be destitute of all other objects of interest.

A solitary specimen of a Juncus, resembling biglumis, was gathered on the Glass Mhiel; whether the true biglumis or a very reduced castaneus, we could not decide. Its size was that of a fine biglumis, but the character was that of castaneus with two glumes and a projecting tall bract. Forms of biglumis and of triglumis certainly approximate in a very confusing and rather unpleasant manner. Can these be hybrids between castaneus and triglumis? An affirmative proof would be rather consolatory.

In looking over my specimens gathered on the Glass Mhiel in 1848, I was struck with the dissimilarity between a plant which we then took for a large form of Sagina saxatilis and the usual state of it as shown by our specimens gathered this year in Glen Phee, &c. On referring to the 'Guide to Forfarshire,' I found that G. Don discovered a plant which he called Spergula maxima, which is supposed to have been a variety of S. saxatilis (Spergula saginoides), and probably the S. macrocarpa of Reichenbach. Not having the works of that author to refer to, I sent it to C. C. Babington, who has always most kindly assisted me in the determination of species, when my own sources of information have failed. He tells me that he thinks it will prove the Sagina nivalis of Fries, a species hitherto unknown to Britain. That it is no variety of S. saxatilis seems certain: it differs in the plant being destitute of the central tuft of leaves, in having *thick*, erect peduncles, a capsule five-cleft, fully twice as long as the calyx, and a compact habit of growth. Though in saxatilis the plant is densely matted, yet few or none of the very slender peduncles are erect. S. saxatilis, moreover, covers the ground in dry, exposed places with a little carpet, while S. nivalis forms *small* solitary tufts in the courses of the mountain streams, judging by the position in which our specimen was found. Should any botanist visit that part of Scotland next season, a little time devoted to a search for this apparent novelty might not be unrewarded.

James Backhouse, Jun.

York, December 13, 1849.

Notes on the more interesting Flowering Plants gathered in North Wales, in September, 1849. By Alfred W. Bennett, Esq.

Although it was late in the season when we started on our trip into Wales, and our attention was more particularly directed to the ferns, we met with many interesting flowering plants, some of them new to us, who have had but few opportunities of botanizing in mountain districts, of which I send a few notes, if thought worthy of record.

About half way between Builth and Rhayader the beautiful little Wahlenbergia hederacea was first observed in patches by the road-side, and afterwards, where the road opens out on to a common, we found it creeping among the grass and low herbage in the greatest profusion. Hypericum elodes is also abundant. Epipactis latifolia almost lines the road-side in several places. In the ditches before coming to Llangurig we first noticed a white-flowered Ranunculus, but nearly past flower, without capillary leaves, which struck us at once as somewhat different in habit and appearance from R. aquatilis, and it proves on examination to be the newly separated R. Lenormandi. It was afterwards found more abundantly in several localities in the sub-alpine districts all round Plinlimmon. The meadows and banks in the same district were profusely ornamented with Viola lutea, of every variety of colour, from entirely yellow to dark purple.

On hedge-banks and in damp places near Machynlleth, the Wahlenbergia was again extremely abundant; and Cotyledon umbilicus was almost everywhere on the walls. On the highest part of the road between Machynlleth and Dolgelly we had much pleasure in observing Spiræa salicifolia in a hedge, exceedingly fine and handsome;

whether truly indigenous or not we had no means of deciding; though the locality is anything but one in which it is likely to have been planted. About Barmouth, Geranium sanguineum almost covers the banks and rocks in some places, and Rubia peregrina was scrambling among the bushes a little out of Barmouth, on the road towards Harlech; both, of course, out of flower at this time of the year. The sands beyond Harlech produced Aster Tripolium, Plantago maritima, and other common sea-side plants.

At Penmorfa, near Tremadoc, Viola palustris was observed by the road-side, but past flower. On the embankments forming the harbour of Pwllheli, Caernarvonshire, we gathered Eryngium maritimum, Euphorbia Paralias, Cakile maritima, Alsine marina, peploides and rubra, Polygonum Raii, Salsola Kali, and Rosa spinosissima. Lepidium Smithii, readily distinguished from its congener, L. campestre, by its exserted style when in fruit, is extremely abundant on the promontory extending westward of Pwllheli, and terminating at Aberdaron; and in general throughout Caernarvonshire and Merionethshire. In pastures near Aberdaron, Gentiana campestris and Trifolium medium occur sparingly; Artemisia Absinthium is abundant; Alsine rubra was again noticed in sandy places about the village, and A. marina on the rocks. Extending into the burial-ground of the ancient church, Glaucium luteum was conspicuous.

The Great Ormes Head is one of the most interesting localities in North Wales, both on account of its bold scenery, and its interesting flora, being almost the only limestone district indicated by the brilliant blue flowers of Cichorium Intybus, and the yellow and pink heads of Anthyllis vulneraria greeting the eye. By the side of the road near the village of Llandudno, which is rapidly rising into importance as a watering place, on account of the magnificent scenery in its immediate vicinity, Senecio viscosus grows in considerable abundance, along with S. sylvaticus, from which its longer rays and remarkably neat and pretty appearance clearly distinguish it at first sight. High up on the cliffs the large shining leaves of Brassica oleracea attracted our attention, growing out of the clefts, and Thalictrum minus among the loose *débris*. In the deep fissures and hollows of the otherwise bare, immense masses of rock heaped together at the base of the western cliffs, we collected Crithmum maritimum, Statice spathulata, and Sedum rupestre; and on the shingly beach more to the south, some very stunted and half-starved specimens of Samolus Valerandi. Above the cliffs were noticed Spiræa Filipendula and Spiranthes autumnalis; and the beautiful flowers of Geranium sanguineum still to be seen here and there in the more sheltered parts. We much regretted that we had not time at command more thoroughly to investigate this most interesting locality.

A single plant of Erodium moschatum was observed on the town walls of Conway. Trifolium medium is tolerably plentiful near Pont-y-Clydd, half-way between Conway and Llanrwst. Near Llanrwst, on the wall which we have no doubt is the same indicated in Newman's 'British Ferns,' as having afforded Asplenium septentrionale in such great abundance, the neat and pretty Thlaspi alpestre grows plentifully.

In Llyn Idwell, which occupies the bottom of the well-known Cwm Idwell, we had the pleasure of gathering Lobelia Dortmanna for the first time, the few remaining blossoms standing out of the water somewhat difficult to reach. Among the fallen rocks up which it is necessary to clamber in order to reach Twll Du, thrive Saxifraga hypnoides, Oxyria reniformis, and Silene acaulis. Sedum anglicum and Saxifraga stellaris are abundant throughout the whole of the Snowdon district. In the chasm itself grows Meconopsis cambrica, and it is alone sufficient to repay all the toil and exertion of the scramble to see and to gather this fine plant in a situation so truly wild. We did not attempt to gain the Lloydia, being far too late in the season to see it in flower. In the descent towards Llanberis, a very steep part of the mountain-side is almost covered with Carduus heterophyllus; and the course of a romantic streamlet coming down in the form of a continued cascade out of Glyder Vawr, is decorated with the beautiful snow-white blossoms of Parnassia palustris. Under Clogwyn-dur-Arddu, one of the shoulders of Snowdon, we gathered Arabis petræa, Cochlearia officinalis, var. *alpina,* Empetrum nigrum in fruit, and a few specimens of Silene acaulis still remaining in flower; on Clogwyn-y-Garnedd, Thalictrum minus and one single plant of Saxifraga nivalis.

Myrica Gale perfumes the morning air on the boggy ground between Pont-aber-Glaslyn and Tan-y-bwlch, where Scutellaria minor is also abundant. By the road-side, in an old quarry a little before the station for Asplenium lanceolatum, we noticed a remarkably fine and striking variety of Convolvulus sepium, with handsome pink flowers.

From Festiniog to Bala is a monotonous dreary road, winding among bare, brown, moory mountains, very thinly inhabited, and anything but generally interesting to the botanist. At one spot Spiræa salicifolia appears to have spread itself as if naturally, and exceedingly fine by the side of some small rivulets tributaries to the Dee. We again noticed it where it is recorded to have been planted between

Bala and Corwen, lower down by the side of that river; but there seems no reason to suppose that it has thus been extended *upwards* to the spot indicated above. Artemisia Absinthium was again exceedingly fine and abundant close to the bridge of the little village of Llandrillo, half-way between Bala and Corwen. From here through Llangollen the road conducts out of Wales.

The more commonly occurring plants have not been noticed above. The time occupied in this excursion was just fourteen days, accomplishing on the average nearly thirty miles per day on foot; which, with the days drawing in rapidly at this advanced period of the year, left but little time to explore any particular locality, or our list might probably have been much richer.

ALFRED W. BENNETT.

London, December, 1849.

BOTANICAL SOCIETY OF LONDON.

Thursday, November 29, 1849.—*Thirteenth Anniversary Meeting.*

J. E. Gray, Esq., F.R.S., &c., President, in the chair.

W. Bean, Esq., of Liverpool, was elected a corresponding member.

The following donations were announced:—British plants from Mr. Hewett C. Watson, the Rev. Professor Henslow, Mr. A. Henfrey, Dr. Bidwell, Mr. T. Bentall, Mr. E. G. Varenne, Mr. J. Storey, the Rev. H. P. Marsham, Mrs. Russell, Mr. D. Oliver, Mr. J. Whittaker, Mr. T. Clark, Jun., Mr. W. H. Purchas, Mr. J. L. Lawrence, Mr. T. Sansom, Mr. W. Bean, Mr. Brent, Mr. J. Reynolds, Mr. G. Cooper, Mr. J. Hussey, the Rev. T. Butler, Mr. G. Rich, Mr. G. E. Dennes, Mr. G. Maw, and Mr. R. Hudson.

The Secretary read the Report of the Council, from which it appeared that fifteen new members had been elected since the last annual meeting, and that the Society now consisted of two hundred and forty-nine members. The distribution of the British duplicates had given the greatest satisfaction to the members, and increased exertions had been made this year to obtain the rarer and interesting specimens, which had been attended with much success. The donations to the library had been considerable.

The Report was unanimously adopted, after which a ballot took place for the Council, when the President was re-elected, and he nominated J. Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S., Vice-Presidents. Mr. J. Reynolds, Mr. G. E. Dennes, and Mr. T. Moore were respectively re-elected Treasurer, Secretary, and Librarian. Mr. J. Coppin, M.A., Mr. G. Luxford, and Mr. J. L. Lawrence were elected new members of the Council, in the room of Mr. A. H. Hassell, Dr. Cooke, and Dr. Ayres.—*G. E. D.*

N.B.—In consequence of the death of Mr. E. Doubleday, one of the Vice-Presidents, no meeting was held in December.

Note on Serratula tinctoria, Alsine stricta, and a Species of Woodsia.

By DANIEL OLIVER, JUN., Esq.

Serratula tinctoria. Botanizing in Teesdale a while ago, I fell in with an example of what appears to be the broad-leaved saw-wort, or Serratula tinctoria, var. *integrifolia.* I have not observed any mention of this variety in Hooker or Babington's Manual: it occurs in Smith's 'English Flora' and 'English Botany.' The figure in Petiver's works is, so far as the leaves are concerned, like the plant in question, but the form of inflorescence is different. It may be common, but never before turned up, to my knowledge, to botanical friends here or myself.

Alsine stricta. Examples of this rare plant which I possess, from Teesdale, appear to have glabrous peduncles; if such be a character, it might be introduced with advantage into the specific description,—more especially as the presence or absence of nerves in the leaves is not so easily determined in the dried plant. Very frequently little reliance is to be placed on pubescence or hairiness; but, so far as I have recently examined, the peduncles of Alsine verna are always more or less hairy or pubescent.

Woodsia. I collected, a few months ago, some miles northerly from Moffat, Scotland, the variety? gracilis, I think, of W. Ilvensis, and agreeing pretty well with the figure in 'English Botany,' No. 2323. If I mistake not, W. Ilvensis was mentioned as occurring in that neighbourhood some time ago in the 'Phytologist.'

D. OLIVER, JUN.

January, 1850.

Contents of the 'Botanical Gazette' for 1849*; a Monthly Journal of Botany, Edited by* ARTHUR HENFREY, F.L.S., &c.

PERIODICAL publication appears to become each year a more popular form of literature, both with readers and writers on science; and Botany has not been left out of this prevailing tendency of the times. 'The Phytologist' led the way as a monthly botanical journal and miscellany, published at a price which placed it within easy reach of almost all persons who could be supposed likely to feel sufficient interest in a scientific study, to induce them to take and read a monthly periodical specially devoted to the one subject. For seven years 'The Phytologist' was alone in this career; the contemporaneous botanical journals keeping to the old-established price of a half-crown for the monthly Number. Last year, however, saw the commencement of two other monthly journals of Botany, published at equal price with 'The Phytologist.' One of these, namely, 'Hooker's Journal of Botany,' was simply the continuation of an older periodical, in a smaller form, and at a lower price, but otherwise very little changed in its real character and objects. To this one some slight allusion has been formerly made in 'The Phytologist' (Phytol. iii. 452); and we may probably mention it more particularly next month. Its objects appear to be quite different from those sought by 'The Phytologist;' and it is addressed to a different class of readers.

The other is altogether a new "venture" in the periodical literature of botany; and one that sails much nearer to the track of 'The Phytologist,' without coming clearly within it. The 'Botanical Gazette' has been ably edited during 1849; although, we may venture to say, its so-intituled "Original Communications" appear to us rather too frequently to be translations of papers published in foreign journals. We by no means object to see such articles in an English form; and if it better suits the editor's convenience to include them among the really "original" communications, we suppose that he will continue to do so. The peculiarity is alluded to just now, in explanation of our remark above, to the effect that the 'Botanical Gazette' does not sail quite in the same course with 'The Phytologist.' While this periodical has always been preeminently, though not quite exclusively, a journal of British botany, the 'Botanical Gazette' becomes more a journal or repertory of European and physiological botany, through its translations, and in its miscellaneous news about foreign botanists. Uncertain whether it would be continued through a second year, we have hitherto abstained from noticing the contents of the 'Gazette;' but the editor informed his readers in the twelfth Number, published in December last, that "the First Number of the Second Volume will appear in due course on the 1st of January, 1850;" and accordingly a thirteenth Number did then appear. While there is still no positive promise or pledge to such effect, we construe this commencement of a second volume into an intimation that the 'Botanical Gazette' will probably be carried on through another year. Its editor has paid 'The Phytologist' the compliment of regularly inserting a list of monthly contents; and as we desire to reciprocate the same plan, it appears advisable to do so *ab initio*, by giving at once the list of contents of the 'Gazette' for 1849, before commencing the monthly lists for 1850.

First Number.

Introductory Address. [Two explanatory pages by the Editor.]

On some recently-discovered British Plants. By Charles C. Babington, M.A., &c. [The recently-discovered plants are most of them rather dissevered than discovered. *Allium triquetrum* (Linn.) has been found in Guernsey, by the Rev. T. Salwey. *Thlaspi alpestre* (British authors) is sub-divided into T. alpestre (Linn.) and T. virens (Jord.) This latter name is applied by Mr. Babington to the plant so plentiful on hilly ground near Matlock Bath; but which is thought by Mr. Borrer not to be the T. virens of Jordan. Another "form," T. occitanum (Jord.), is reported as a variety of T. alpestre; while T. alpestre and T. Gaudinianum (of the same "splitting Frenchman") are quoted as synonyms of T. alpestre. *Medicago falcata* is bisected into two varieties, "vera" and "sylvestris," both occurring near Thetford, Suffolk. *Arenaria viscosa* (Fries) is reported from Redneck Heath, near Thetford, and considered to be only a hairy or glandular variety of A. tenuifolia. *Knautia arvensis*, variety *integrifolia*, which we had supposed familiar to English botanists, is recorded as "noticed for the first time" at Cherry Hinton, near Cambridge, in 1848.]

On three species of Ferns hitherto involved in much confusion: Aspidium lobatum, *Sm.*, A. aculeatum, *Sm.*, and A. Braunii, *Spenn.* By Prof. G. Kunze of Leipsic. [Translation from the 'Flora' of June 14, 1848. Continued in No. 2 of Bot. Gaz.]

On the Stolons of Epilobium palustre, and of some other species of the same genus. By Thilo Irmisch. [Translation from the 'Botanische Zeitung.']

Literature. Proceedings of Societies. Miscellanea. [Among the last is a record of Trifolium strictum having been found in Anglesea, by Mr. T. Dickenson; but the discovery seems somewhat vague or uncertain, by the record.]

Number 2.

On Valeriana officinalis, *L.*, V. sambucifolia, *Mik.*, and some other doubtful species. [Notices about the plants from foreign authors.]

Note upon the Effects of Cultivation on Plantago lanceolata, γ. sphærostachya (W. & G.) of Bab. Manual. By George Lawson, F.B.S.E. [Mr. Lawson removed a root from the sands of Barrie into a garden, where it became ordinary P. lanceolata, as might have been expected.]

Discovery of Bromus tectorum in Britain. [A paper by Mr. C. C. Babington, to record the discovery of B. tectorum "for the first time as a native of Britain," near the New Mill, Hertford; where Setaria glauca and various other foreign species have likewise occurred, doubtless equally introduced with seeds of flax or other foreign produce.]

Literature. Proceedings of Societies. Miscellanea.

Number 3.

Additions to the Flora of South Wales. By Hewett C. Watson. [A list of species not on record as occurring in South Wales, when the first volume of the 'Cybele Britannica' was printed, but subsequently reported from thence by Mr. James Motley, Mr. C. C. Babington, or other botanists.]

On the Causes that determine the Fall of Leaves. By Dr. Inman. [From the 'Proceedings of the Literary and Philosophical Society of Liverpool.']

On the Fumaria agraria, *Lag.* By Charles C. Babington, M.A. [A form long known in England, and usually labelled "F. capreolata" by English botanists.]

On the Varieties of Lythrum Salicaria, *L.* By Prof. Schlechtendal. *Ditto;* by Ph. Wirtgen of Coblentz. [Translations from the 'Botanische Zeitung.]

On a curious Fact in the Physiology of Roots: their penetration into Mercury. By M. Durand. [Translation from the 'Annales des Sciences. Continued into the succeeding Number of Bot. Gaz.]

Literature. Proceedings of Societies. Miscellanea.

Number 4.

On Sagina ciliata, *Fr.*, and S. apetala, *L.* By F. Beneken. [Translation from the 'Botanische Zeitung.' The purport of the paper is to establish the identity of these two alleged species.]

Abnormal Morphology. By Hewett C. Watson, Esq.

On a Transformation of the perichætial part of the Mosses. By C. Muller. [Translation from the 'Botanische Zeitung.']

Literature. Proceedings of Societies. Miscellanea.

Number 5.

On the Causes which limit the Distribution of Plants in the North of Europe and analogous Regions. By Alph. De Candolle. [Abstract of a paper published in the 'Annales des Sciences Naturelles.' The author recognizes *heat* as the grand cause, but considers that the true mode of reading its effects is, by reckoning up the sum of heat required during the period of growth for the species; the length of time, and the height of the thermometer, being in an inverse ratio; more heat for a shorter time, being equivalent to less heat for a longer time. We fear that there is a fallacy of reasoning here, although the view is founded in truth.]

On the Rubus nitidus of Authors, and some other Species. By Charles C. Babington, M.A.

Contributions to the History of certain Cultivated Plants. By Dr. Fraas. [Translation from the 'Botanische Zeitung.']

Literature. Proceedings of Societies. Miscellanea.

Number 6.

On the Transformations of the Flora of Central Europe during the Tertiary Period. By M. V. Raulin. [Translation from the 'Annales des Sciences.']

Vegetation of the Upper Regions of the Nile. From M. Fred. Werne's Account of Mehemet Ali's Expedition to the White Nile.

Literature. Proceedings of Societies. Miscellanea.

Number 7.

Observations on Viscum album.

On the Periods of Vegetation of Winter Rye and Wheat, from the Flowering to the ripening of the Seed. By G. Lucas. [Translation from the 'Botanische Zeitung.']

On Sagina ciliata. By Charles C. Babington, M.A. [Mr. Babington distinguishes S. ciliata by its sepals being adpressed to the capsule in the mature plant, and S. apetala by its sepals ultimately spreading in the form of a cross. Other differences are mentioned in the characters printed, but these are rather verbal than real.]

On Twice-flowering Trees, and the influence of last Winter. By Prof. Schlechtendal. [Translation frsm the 'Botanische Zeitung.']

On the Causes which interfere with the Development of Flowers, Fruits and Seeds. C. F. Gärtner. [From C. F. Gärtner's 'Beitrage zur Kenntniss der Befruchtung,' 1844.]

Literature. Proceedings of Societies. Miscellanea. [The most important article of the 'Miscellanea,' is a plan or proposal for the "Registration of Localities,"—one likely to become very useful, if supported and well carried out.]

Number 8.

On Viola sylvatica and canina. By Fenton J. A. Hort, Esq. [Rather behind the 'Phytologist,' in its subject and matter; and asserting some errors.]

List of the Silesian indigenous Willows; with some appendices on Synonymy, &c. By the Director Wimmer, of Breslau, &c. [Translation from the 'Flora.' Continued into succeeding numbers of Bot. Gaz.]

Literature. Proceedings of Societies. Miscellanea.

Number 9.

Note on Fumaria Vaillantii. By C. C. Babington, M.A. [The author of the Note deems it probable that we possess only one species in Britain, under the two names of Vaillantii and parviflora. A similar opinion was expressed in the 'Cybele Britannica,' in 1847.]

Descriptions of new and more accurately discriminated species of Odontites, growing in Britain. By John Ball, Esq., M.R.I.A. [Extracted from the 'Annals of Natural History.' The novelty appears to lie in dividing the Euphrasia Odontites into two species, "verna" (Reich.) and "rotundata" (Ball), and then subdividing the former into two forms or varieties, "rubra" (Pers.) and "elegans" (Ball).]

On the Reproduction of Plants. By Prof. Schleiden. [Translation extracted from the 'Principles of Scientific Botany.']

Literature. Proceedings of Societies. Miscellanea.

Number 10.

On Viola sylvatica and canina. By W. H. Purchas, Esq. [A series of figures of the capsules, with judicious remarks on the two species and their nomenclature.]

On Fumaria parviflora, *Lam.*, and Vaillantii, *Lois.* By Arthur Henfrey, F.L.S. [Mr. Henfrey considers that the plants of Kent and Essex, found by himself and by Mr. G. S. Gibson, belong to F. parviflora, and states that he has not seen British specimens of F. Vaillantii.]

Observations on certain French and German Plants. By Dr. F. Schultz. [Translation from the 'Flora,' of April 12, 1849.]

Special Morphology. By Prof. Schleiden. [Extract.]

On a remarkable Monstrosity of the Vinca. By Professor Edward Forbes.

Literature. Proceedings of Societies. Miscellanea.

Number 11.

Observations on the genus *Ulex*, with the Description of a New Species common to Brittany and the South-east of England. By J. E. Planchon, Dr. es Sciences. [Translation from the 'Annales des Sciences Naturelles.' The alleged new species was known several years ago among English botanists, and mentioned in Babington's Manual as a variety, "major," of Ulex nanus. Dr. Planchon gives to it the name of U. Gallii.]

On the Dorsetshire Ulices. By Prof. E. Forbes. [Mr. Forbes says of Dr. Planchon's dissevered species, nanus and Gallii, that "the distinctive characters he assigns to them will not do in the field, however well they may contrast on paper."]

Note on Dr. Planchon's paper on Ulex Gallii. By Charles C. Babington, M.A.

On the British forms of Daucus Carota. By Prof. Edward Forbes, F.R.S. [Prof. Forbes thinks "that we had better give up attempting to divide our British carrots into more species than one."]

On the Rumex palustris of Smith. By C. C. Babington, M.A.

Literature. Proceedings of Societies. Miscellanea. [The 'Miscellanea' include "Records of Localities," and other minor points of information. The records doubtless are understood by the editor to rest upon the personal testimony of the individual contributor. Some few of them are errors of name, or unnecessary repetitions of facts old in print; and this class will soon increase, if not guarded against. It is much to be wished that both these objectionable features in the reports of localities could be prevented or checked. There seems only one course likely to effect this desirable object; namely, submitting the reports of habitats to the eyes and opinion of some competent boatnist, *before* printing them.]

Number 12.

Note on Viola sylvatica and canina. By the Rev. W. A. Leighton, B.A., &c. [A short paper, with two figures, to show a difference in the form of the stigmas of the two species mentioned. These differences, however, are too slight to be made available in a verbal character: they would probably puzzle, rather than assist, any botanist who was not already familiar with the plants, and therefore familiar with more obvious and broader differences.]

Dr. Dickie's Cystopteris. By Thomas Moore.

Notes on some British forms of the genus Thalictrum. By John Ball, M.R.I.A.

On Equisetum arvense, var. *serotinum*, Meyer. By J. W. Sturm. [Translation from the 'Flora' of July, 7, 1848.]

Literature. Proceedings of Societies. Miscellanea. [Among the "Records of Localities" is one for Orchis hircina; namely, "In the parish of Great Glemham, near Saxmundham, Suffolk. E. N. Bloomfield, July, 1847." It would be very desirable to have some corroboration of this alleged locality for so rare and so conspicuous a plant.

Number 13.

Notice on Potamogetou fluitans, *Roth*, and Ulex Gallii, *Planch.* By F. J. A. Hort, Esq.

On the genus Bromus, Sect. Serrafalcus, Parlatore. By Dr. F. Schultz. [Translation from the 'Flora' of April 21, 1849.]

On extensive Fissures observed in the Stems of two living and healthy Trees of the Spruce Fir. By Ralph Carr, Esq. [From the 'Transactions of the Tyneside Naturalists' Field Club.']

Remarks resulting from a perusal of Mr. Watson's 'Cybele Britannica,' vol. ii. By C. C. Babington. [Notes in explanation or correction of points in the 'Cybele,' chiefly where the name of Mr. Babington is mentioned as the authority for statements, &c.]

Literature. Proceedings of Societies. Miscellanea. [Among the latter is an extract from the 'Botanische Zeitung,' "On the plan to be pursued in teaching Botany in schools," that is highly deserving the attention of Professors in Colleges, equally with Masters in Schools. "Terminology, which is superabundant, containing much that is useless, must be used with discrimination." And, "We should not teach this or that natural system, since all are more or less incomplete [rather, more or less arbitrary and unnatural], and the student will already have become aware of the existence of natural families from the course of instruction." Our self-deluded system-coiners, who mistake words for things, terms for knowledge, will very little relish such advice.]

C.

Extracts from the 'Proceedings of the Linnean Society of London.'

On the Injuries sustained by certain Plants from the attacks of parasitic Fungi, with particular reference to the Cause of the Potato Disease, by F. J. GRAHAM, F.L.S.

In order to demonstrate the subject more clearly, Mr. Graham exhibited drawings, with magnified figures of several species of parasites; and a great many specimens of different plants, both native and exotic, presenting an healthy appearance on those parts which were still free from the attacks of the different species of mildew to which they were subject, but at the same time showing the most indisputable signs of disease on those parts which were infested by tufts of mildew. The manner in which one plant in particular, Shepherd's Purse (*Thlaspi Bursa Pastoris*, L.), was effected, was very remarkable. Portions of the stems of this were covered, to the extent of two or three inches, with Botrytis parasitica, which caused them to become gouty or swollen to three times their natural size; and eventually these parts assumed a brown colour, and a moist putrescent character, which could be traced down the stalks, and in many cases killed the plants. Transverse sections of these blotches, compared with similar sections of a blotch on the potato stalk, exhibited the same effects, the dark fluid having penetrated the tissues of both to a considerable extent. Of all the species of parasitic mildews which he has noticed, Mr. Graham considers those belonging to the genus Botrytis to produce the severest injuries; and it is an undisputed fact that the potato crops have been universally attacked, during the last three seasons, by Botrytis infestans.

As to the manner in which these parasites acquire their destructive power, Mr. Graham considers that it arises from the natural decay of their *mycelium* or internal filaments, which he has found traversing the tissues of plants, beneath the external tufts of mildew. That the tissues of plants are extensively permeated by this *mycelium*, has been frequently shown by the Rev. M. J. Berkeley and other mycologists; but the important fact that these roots (as they may be termed) *die* within the tissues of plants, along with their superstructure, assuming a dark colour in decay and ultimately dissolving into a viscous mass, has hitherto, Mr. Graham states, escaped the notice of authors. Decaying matter being thus secretly introduced, corrupts the adjacent tissues, and in many cases spreads over the entire plant and kills it. Mr. Graham states that he has arrived at this conclusion after repeated examinations under powerful microscopes, but that the effects are visible in some cases to the naked eye. Experiments made by enclosing tufts of mildew in the sap of those plants on which it grew, also exhibited the results above stated.

Double-flowered Variety of Matricaria Chamomilla, by J. Hogg, F.R.S., F.L.S.

Mr. Hogg exhibited dried specimens of a plant which he regarded as a double variety of Matricaria Chamomilla, *L.*, found by himself on the sandy road-side near Whitburn, Durham, together with a coloured drawing of the natural size. He stated, in a communication accompanying the exhibition, that he had never before observed any similar variety of the species above named, nor could he find any account of its having been known to vary with a double flower. Sir J. E. Smith, however, in his 'English Flora,' states of Anthemis nobilis, that "varieties with double flowers are common in gardens;" and in Smith's own herbarium, in the Museum of the Society, are two specimens of Pyrethrum inodorum, var. *flore pleno*, the flowers of which very strongly resemble those exhibited. These were found in Norfolk, by Mr. Crowe, in 1799, and are mentioned in the 'English Flora' as "a double variety, having a multiplied radius and an obliterated contracted disk." In the present example Mr. Hogg states that "the external white petals, or rather the florets of the radius, are altogether larger and stronger; they are much elongated, strap-shaped, less narrow, with their margins somewhat folded inwards, and are rather more numerous than those in the ordinary single flower, from which they also differ by being sometimes bilabiate; whilst the disk itself is greatly contracted and reduced, and its tubular florets appear to have become very small and abortive; thus apparently indicating that the florets of the radius have become lengthened and enlarged at the expense of those of the disk." Mr. Hogg adds, that in general appearance these large double flowers of Matricaria Chamomilla resemble the common white double flowers of the genus Chrysanthemum.

Observations on certain Species of the Natural Order Cycadeæ, by JAMES YATES, Esq., F.R.S., F.L.S., &c.

Cycas revoluta. Since the year 1799, when a female plant of this species flowered at Farnham, as described by Sir James Edward Smith in the 6th volume of the Linnean Transactions, a considerable number of the same sex have flowered in this country. Five individuals might be mentioned, which are now in a flowering state. On the other hand, only one male plant is known to have flowered in our island. This was formerly at York, and is now in the Botanic Garden at Sheffield. Its cone, or rather spike, nearly a metre in length, is preserved in the museum of the Yorkshire Philosophical Society, and exhibits in a very striking manner the affinity of this genus to the rest of the Cycadeæ, whilst the female cone of Cycas differs greatly from that of all the other genera.

Macrozamia spiralis. The genus Macrozamia, the scales of whose cone, whether male or female, are distinguished by terminating in a single spine, directed upwards, appears to be very closely allied to the Dioon of Professor Lindley. It is difficult to distinguish the young seedlings of these two genera. The only perceptible difference is, that in Macrozamia the leaflets are contracted at the base, and are more remote from one another than in Dioon. Also in both of these genera the leaves of the young plants differ most remarkably from those of the same plants in the adult state. Macrozamia, as well as Dioon, approaches Cycas in the circumstance that the leaflets are decurrent, whereas in the remaining genera, Encephalartus, Zamia and Ceratozamia, they are not at all decurrent, but are contracted at the base, and join the midrib of the leaf by a distinct articulation. The decurrent leaflets of Macrozamia spiralis are especially apparent in the young plants.

Encephalartus brachyphyllus. A male plant flowered last year at Chatsworth. The cone appeared early in May, and was full-grown in two months.

Encephalartus Altensteinii. There are at Chatsworth two splendid specimens of this species, which are labelled as such. Some of their leaves are two metres long. One of the two specimens has thrown out bulbs, producing offsets of considerable size. On comparing the leaves of the offsets with those of the parent plant, the former are observed to be much more spinous and smaller than the latter, the number of the leaflets also being much less. This individual therefore affords a decisive proof that such diversities in the leaves may depend upon the age of the plant, or upon other circumstances. Hence it may be inferred, that many individuals, which in our conservatories are distinguished by other names, and especially many of those called " Zamia pungens," or " Encephalartus pungens," belong to the Encephalartus Altensteinii of Lehmann and Miquel. Lehmann assigned this name and made his description of the species from the study of specimens directly imported from South Africa. But if the view here taken be correct, the species was already common in Europe under other names. A plant called " Zamia pungens," in the Botanic Garden at Birmingham, agrees exactly in appearance with Lehmann's plate of E. Altensteinii, in his 'Pugillus Sextus' (Hamburgh, 1834). The history of two of these plants called " Zamia pungens" is remarkable. They are a male and a female, of about equal size and similar appearance, and formerly belonged to Lord Tankerville's collection at Walton-on-Thames. When they were sold, the male plant went to Kew, the female to Chatsworth. Both have flowered, and the flower of each has been represented. An engraving of the female with its cone, produced in 1832, was published by A. B. Lambert, Esq. (see Buckland's 'Bridgewater Treatise,' i. 494; ii. plate 59), and Mr. R. Horsman Solly obtained a fine drawing of the flower of the male in 1839 (Proceedings of Linn. Soc. p. 52). This male cone is preserved in the collection of the Linnean Society, and a cone afterwards produced by the same plant is in the museum at Kew. This plant is now putting up a new crown of leaves. Its fellow, the female at Chatsworth, has been in fruit many months. Miquel observes, that this species was formerly cultivated in European conservatories under the name of " Zamia spinulosa," or " Z. spinosissima." Both he and Lehmann assign the name of " Encephalartus pungens" to an entirely different species.

Encephalartus Caffer. This species, which in Miquel's arrangement immediately follows E. Altensteinii, differs from it distinctly in the form of the leaves. Also in both species the form of the leaves, and more especially the obliquity with which the leaflets are set upon to be supported by a very short thick peduncle, not exceeding fifteen millemetres in length, and covered with down. A section having been made across the axis in its thickest part, the centre was observed to be pith, without cells, vessels, or woody fibre. This central portion was surrounded by pith, abounding in cells and bundles of woody fibre. The cells were filled with gum, and very different from the bundles of woody fibre. These latter, being destined to supply the scales, first pursued a course parallel to the axis, and then turned outwards to the bases of the scales. In relating the history of this plant, it is to be observed, lastly, that some time before the scales began to fall from the axis, a set of young leaves made their appearance on one side of its base. They were invested with a thick, silky, olive-coloured pubescence. They at first took a horizontal direction, but on the removal of the cone their tendency was upwards.

Notice of 'A Manual of the British Marine Algæ. By W. H. Harvey, M.D., &c.' London: Van Voorst. 1849.

Immediately on its appearance in 1841, Mr. Harvey's 'Manual of British Algæ' became a standard authority on the Sea-weeds of the British Isles. The author was fortunate in being able to avail himself of the invaluable assistance of Mrs. Griffiths, and the published labours of Dr. Greville, in addition to that store of knowledge he had himself acquired during the many years in which he had devoted the energies of a very superior intellect to the study of these most elegant and interesting plants. In the first edition, however, he unfortunately fell into the common-place, the all but universal, error of young authors, of extending the bounds of their subject beyond the limits of their knowledge, and so entailing on their works that inevitable consequence and terrible drawback, a "lame and impotent conclusion." He included in his 'Manual' those microscopic atoms which hover (in the minds of our philosophers) between the animal and the vegetable kingdoms,—a tribe for which he has no taste, which he had never made his study, and of which, consequently, he possessed no knowledge. This obscure tribe has since become the subject of two important works, by Mr. Hassell and Mr. Ralfs: and Dr. Harvey has very properly omitted it entirely from his new edition, which is confined to Sea-weeds, properly so called; which brings down theitory to the present time; and which is, beyond all doubt, the best book that has yet appeared on this most interesting subject. In addition to the greater amount of matter contained in the body of the work, it has two valuable additions to the edition of 1841: an admirable glossary of terms, constructed precisely on the model of that in Newman's 'Introduction to the History of Insects;' and a series of beautiful plates, in which the general figure, fructification and structure of one species in each genus are delicately and elaborately exhibited. In fine, it is a work which every collector of our Sea-weeds must possess; and, possessing it, he will need no more costly or extensive series of illustrations.

There are, however, two points on which we incline to offer a friendly criticism; and the more so, because they are *common* errors, —errors which occur in all of our systematic botanical works,—and therefore errors which we think Dr. Harvey ought to have avoided. The *first* of these is what we might fairly term a straining after derivations; the *second* is the substitution of superficial for structural leading characters in primary groups. We will give examples of each.

Derivation. "Ulva, Linneus. Name supposed to be derived from *Ul*, *water* in Celtic."—p. 216.

Our Latin dictionaries teach us "Ulva, weed of the sea." Virgil, using the word, gives no hint at any derivation beyond his own language. We have not the Mantuan at hand, but recollect three passages in which the word occurs:—

> Limosoque lacu per noctem obscurus in *ulva*
> Delitui.
>
> Tandem trans fluvium incolumes vatemque, virumque
> Informi limo, glaucaque exponit in *ulva*.
>
> Nec vescas salicum frondes, *ulvam*que palustrem.

Now suppose a school-boy denying the latinity of these passages, and contending that Ulva was derived from the Celtic; it is a matter of certainty he would have the school-calf of the Delphin edition brought into unpleasant proximity with his calf's-head. Are we to suppose Linneus had no Latin dictionary?—are we to suppose he had no Virgil?—or wherefore should he wander into the Celtic for a common and well-known Latin word?

Character of primary groups. Dr. Harvey is unusually caustic on the ordinal division of Cryptogamia into such groups as Algæ, Lichens or Fungi. In alluding to the term *orders*, so applied to them, he pungently remarks, "we should rather call them *disorders*." This remark is followed by a subdivision of the Algæ into three subclasses, which we give *in extenso* below, and to which we invite the reader's earnest attention; and he will see that colour is made the leading distinction, and he will find this leading distinction scarcely, if at all, supported by the structural details subsequently given. Far be it from us to assert that we possess the clew to a better arrangement; but we do unhesitatingly express our conviction, that the division of these tribes will hereafter be made to rest on structural differences; and that colour, if it chance to mark such structurally distinguished groups, will be held rather as a subsidiary than a primary character. It will be a curious, interesting and highly valuable discovery, should it be found that colour is even tolerably uniform throughout a class or order of animals or vegetables; but we are of opinion this remains to be proven.

"1. *Melanospermeæ*. *Plants* of an olive-green or olive-brown colour. *Fructification* monœcious or diœcious. 1. *Spores* olive-coloured, either external, or contained singly or in groups in proper conceptacles; each pore enveloped in a pellucid skin (*perispore*), simple or finally separating into 2, 4, or 8 sporules. 2. *Antheridia*, or transparent cells filled with orange-coloured, vivacious corpuscles, moving by means of vibratile cilia. *Marine*.

"2. *Rhodospermeæ*. *Plants* rosy-red or purple, rarely brown-red or greenish-red. *Fructification* of two kinds, diœcious, always formed on separate individuals. 1. *Spores* (*gemmules*, Ag.) contained either in external or immersed conceptacles, or densely aggregated together and dispersed in masses throughout the substance of the frond. 2. *Spores* (called *tetraspores*, *gemmules*, Thw.) red or purple, either external or immersed in the frond, rarely contained in proper conceptacles; each spore enveloped in a pellucid skin (*perispore*), and at maturity separating into four sporules. *Antheridia* (not observed in all) filled with yellow corpuscles. *Marine, with one or two exceptions*.

"3. *Chlorospermeæ*. *Plants* green, rarely a livid purple. *Fructification* dispersed through all parts of the frond, the whole colouring matter being capable of conversion into propagula. 1. *Spores* (*sporidia*, Ag.) green or purple, formed within the cells, often (always?) at maturity vivacious, moving by means of vibratile cilia. 2. *Gemmules* (*coniocystæ*, Ag.) or external vesicles containing a dense, dark-coloured, granular mass, and finally separating from the frond. *Marine, or (more generally) found in fresh water streams, ponds and ditches, or in damp situations. (The marine species of this sub-class are alone described in the present work.)*"—p. 4.

K.

On the Growth of Grass. By S. W. Leonard, Esq.*

After some preliminary observations, the author stated that about three years ago his attention was called to this subject, by observing that some grass, which was in a vessel in which he kept some animalcules, increased in height very rapidly, one shoot which he measured having grown as much as an inch and a half in twenty-four hours. He consequently thought that, by proper management, he might possibly be enabled to *see* it grow under a microscope. Being prevented at that time by other avocations from pursuing the subject, he was unable to verify his idea until July last, when, having procured a turf of the common meadow-grass (*Poa annua*), he manured it, and then found it grew at the rate of an inch or more in twenty-four hours. One of the young stems, with its root, was placed in a small test-tube, which being properly adjusted under the microscope, he had the satisfaction—with a power of 400 diameters—of seeing it traverse the field of view. At first no motion was perceptible; but in about half a minute the point darted forwards considerably, and after remaining stationary for a short time it again made a spring forwards, and so on at short intervals until it had entirely crossed the field. This was repeated several times, with the same results. Suspecting, however, that this mode of progression by starts could not be natural, he made some alteration in the arrangement, and then found that the motion forwards became gradual and equable. The field of the microscope included rather more than $\frac{1}{100}$th of an inch, and the apex of the grass traversed the whole diameter in somewhat less than ten minutes. In reference to the mode of growth of this part of the plant, he stated his opinion that a gradual expansion and elongation of the cells takes place, causing the increase both in the length and breadth of the blade, but that there might also be additional cells produced near the root, which cells may be gradually developed and matured in the stem during its

* Extracted from the 'Proceedings of the Microscopical Society,' published in the 'Zoologist' for January.

growth: this he was inclined to think was actually the case, because the outer edge of the grass was serrated at regular distances. When the upper surface or cuticle was brought into focus, certain more or less hexagonal cells, coated with a very thin layer of silica, became visible: this outer covering, however, does not appear to undergo the slightest change during the progress of the growth: the serrations also appeared to cover the whole surface of the grass. Hitherto he had been unable to observe the development and growth of cells near the root, his attention having been more particularly directed to the apex of the blade, the pushing forward or growth of which he considered to be occasioned not by the before-mentioned expansion or elongation of the terminal cells, but by the addition of new matter to the base of the blade.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By William Arnold Bromfield, M.D., F.L.S., &c.

(Continued from page 768).

Daphne Mezereum. Woods, thickets and copses; rare? It can scarcely be held indigenous to the Isle of Wight, as hitherto it has occurred in a couple of localities only. A single small plant in a moist brambly thicket about a quarter of a mile west of Wackland farm; Mr. Thatcher!!! The plant was shown to me by the late Mr. R. Loe, of Newchurch, with unripe berries on it, May 12, 1845. A specimen had previously been found some years since at Apse Castle, near Shanklin, by Mrs. Cheverton, of Apse farm, and by her transplanted into the garden there, where I saw it growing. In several parts of mainland Hants. In Old Park Wood, Bishop's Sutton; Mr. J. Forder!!!—also reported to grow in Old Down Wood, Ropley, and in Brooke's Wood, Bishop's Sutton; *Id.* In West Wood, West Meon, but very scarce, from being so much sought after to supply the gardens; Miss E. Sibley!!! Reported to grow in the woods at Brookwood; Dr. A. D. White. (This station is very near the last, and hence very probably correct). In the beech woods betwixt West Meon and Bramdean, quite wild, and not sparingly; Mrs. Winkworth Moody. (Mr. Pamplin in New Bot. Guide Suppl.) This includes both the two preceding stations, with perhaps other localities, and I had Mrs. Moody's own authority for the abundance of the Mezereon there when remarked by herself, but on visiting these woods some eight or ten years back, in the hope of procuring specimens, I utterly failed to discover a single plant, but was shown by the woodman thriving bushes in his garden, which had been introduced by him from the copses, where he believed it to be then all but extinct, from the avidity with which it was hunted out and dug up for transplanting by the cottagers, either for their own use or for sale to the nurserymen. Wherwell Wood, near Andover, and in Amphiel or Amfield Wood, near Winchester, according to Mr. Wm. Whale, but who does not give it on personal observation. "Selborne Hanger (in a part called the Scrubs), amongst shrubs at the south-east end above the cottages," —Rev. G. White in Nat. Hist. of Selb.,—where it still grows, as I learn from Mr. Binnie, gardener to my friend Thomas Bell, Esq. The station is one perhaps open to some suspicion, yet may be as truly natural as any of the rest. Woods near Andover, plentifully; Miller (Bot. Guide.) Through the kindness of Mr. Forder I was directed to Old Park Wood, near Bishop's Sutton, March 21, 1848, and where, a few days earlier, several good flowering specimens of Mezereon were marked down, by a person instructed to search for the plant, previous to my coming to see them. But, alas! some one had been before hand with us, and carried off every flowering specimen they could find, leaving numbers of young seedlings dispersed through the wood, which in that state are overlooked or disregarded by these rapacious collectors. A few of these seedlings I took up for cultivation at Ryde, and continuing the search over the wood with my guide, succeeded in detecting a very limited number of small flowering plants, that had escaped observation from their diminutiveness, being scarcely six inches high at most. The stems of the wild Mezereon are usually simple or very sparingly branched, and seldom, I think, above a foot or sixteen inches high, although it is probable they might attain to a more considerable stature were they allowed to remain unmolested, of which there is but little chance when once they are become large enough to be conspicuous in flower. Until it blossoms, or when the flowers are past, this shrub is apt to escape notice, from its simple and slender habit aiding its concealment amongst the brushwood, and from the resemblance the leaves bear to those of the Wood Spurge (*Euphorbia amygdaloides*), a plant of the commonest occurrence in every patch of copse or thicket throughout the county. For these reasons it is a most difficult undertaking to procure fine native specimens of Mezereon, which, were the plants left to flourish undisturbed, would in all likelihood be no rare inhabitant of our woods, since it contrives to maintain its ground in spite of marauders that seem bent on its extirpation. With us, in the wild state the flowers are very pale red, or nearly, if not quite, white, but in delicious fragrance not inferior to the deepest blush variety seen in the gardens. Cuttings of this shrub do not strike, unless perhaps in sand under a hand-glass, a process too refined for rustic horticulturists to practise, and hence probably the reason why seedlings from the woods are in such request for supplying the cottagers' gardens with a favourite, but I fancy not very enduring, occupant.

As regards the question of the actual spontaneity or indigenous origin of the Mezereon in England, it has unquestionably, both in this and the adjoining county of Sussex, the appearance of being a genuine native. Mr. H. C. Watson, in the second volume of his 'Cybele Britannica,' p. 352, has the following remarks on this head. "My own inclination would be to treat this shrub as an alien, without attempting to fill in the formula in the customary way for native plants. By Hooker it is classed with the introduced species; by Henslow and Babington with the undisputed natives. Mr. Borrer deems it "truly wild" in Sussex; Mr. Pamplin apparently takes the same view of it in Hants; the authors of the 'Flora Hertfordiensis' enter it as an unchallenged native of Herts; and so with respect to some other counties and their witnesses. The continental distribution of the species is such as rather to oppose the idea of the shrub being indigenous to Britain." The objection conveyed in the concluding sentence of this quotation is the only one which, in my opinion, carries any weight with it. I presume Mr. Watson here alludes to the inland and eastern, or, as it might be termed in accordance with his nomenclature of distribution, ultra-Germanic tendencies of this shrub. The Mezereon has its principal seat in the north and north-east of the European continent, appearing, as a general rule, to shun the maritime climate of its western coasts, and of the smaller islands appertaining to it. The species abounds most in Poland, Russia, eastern Germany towards the Baltic, and in all parts of Hungary, Gallicia, and other deeply continental lands betwixt the Baltic and Mediterranean eastward beyond the Uralian mountains into Siberia, and extends northward into Scandinavia as far as the southern provinces of Lapland. It certainly approaches the western shores of central Europe in several parts of their extent between Norway and France, as it is included in the floras of Denmark proper, of Belgium and France,—all of which, however, it must be allowed, are to the eastward of any British meridian, and so far inconclusive of the aboriginality of the Mezereon in our island. It likewise appears to be totally wanting along the entire western coast line of France and the Peninsula, but this line is itself west of the limitrophe meridian, beyond which the Mezereon is not found wild in England, and therefore does not militate against its claim to be accounted indigenous on points lying to the eastward of that line. But partial inflections or deviations are observable in the general lines of distribution of very many plants; and if we will not allow the Mezereon to be an aboriginal, it is at least clear that in the south-east of England it has found climatic conditions so favourable to spontaneous establishment and dispersion abroad, as to maintain its ground by sheer power of occupancy, in defiance of means directed against it apparently adequate to ensure its extirpation. A common notion amongst the country people is, that the Mezereon plants in the woods originate from seeds of the garden shrub dropped by birds. I have in another part of this journal (Phytol. ii. 518) expressed the value I attach to this mode of accounting for the dissemination of species of assumed foreign descent, and shall now only observe, that most of the Mezereon bushes in the vicinity of the stations where the plant is found wild have been transplanted seedlings from those very woods that are now but receiving back their inhabitants in the descendants of the latter. That such is the fact in some degree I am not prepared to deny, for as the Mezereon is doubtless indebted to the agency of birds for its propagation from one natural station to another, it would be strange if seeds of the same species from the gardens should not occasionally find the like means of transport to their original sylvan habitats. But very strong and convincing reasons must be assigned for the opinion, before I can be persuaded that the presence of the Mezereon in our Hampshire woods is due solely to seeds of the cultivated plant conveyed thither by birds: there is nothing but bare conjecture to support this idea, save certain theoretical considerations of geographical distribution, which in the present case are shown to be open to exceptions. It may be said that the silence of the older English botanists on the occurrence of the Mezereon as a British plant, is another cause for doubting its nativity; that objection, if admitted, would involve some dozens of generally acknowledged aboriginals in the same uncertainty: it has been met in a late part of these Notes (Phytol. iii. 622). For myself, I am content to follow the example of Fries in forming my judgment in this matter: "Bene novi," he says, "aliis placuisse hanc plantam exclusam, illam additam, in his suo utantur judicio; equidem vero non aliorum commentis, sed meæ experientiæ indulgere debui;—parum vero curans utrum planta ceterum autoctona vel primitus introducta videatur" (Corpus Flor. Provin. Suec. i. Fl. Scan. p. 13.)

Daphne Laureola. In woods, copses, thickets, hedges, and on bushy banks, usually under the shade of other shrubs and trees. In many parts of the Isle of Wight, but not generally frequent there. Far more common in East than in West Medina, and in the last principally around Ryde, in many of the woods near which town it is quite a frequent shrub. In Quarr Copse, Shore Copse, Church Lane, and elsewhere at Binstead; between Quarr and Ninham; Priory woods; copses near Aldermoor farm; betwixt Aldermoor and Smallbrook farms; copses about the Wootton River, and in most other woods and thickets for a few miles about Ryde, usually sporadic, but occasionally in tolerable abundance within a limited area. It exhibits in this island a decided preference for the clay of the tertiary strata, over the chalk or any other deposit. Wooded bank betwixt Brading and Nunwell. In a wooded hollow in Appuldurcombe Park, and on the bank at the top of a sloping field immediately above Span farm; in both places on the chalk, and rather plentifully. In the Undercliff, but very rarely. By the Pulpit Rock, and wood between Steephill and St. Lawrence; Mr. Albert Hambrough!!! In St. Boniface Copse, opposite St. Boniface Cottage, in considerable plenty; Miss Hadfield! Very uncommon in West Medina. On Carisbrook Castle Hill, amongst the trees on the east and north sides, and amongst bushes at the upper end of the plantation of beeches by the way up to the castle from Newport. A single specimen picked in Stopler's Copse, betwixt Yarmouth and Thorley. I have not remarked the Spurge Laurel in many places on the mainland of Hants, but have no reason to believe it rare in the county. Selborne, as mentioned by White. I find it in Great Dorton (a wood so called), and in various parts of Selborne Hanger, especially at the end furthest from the village, when it is quite frequent in the beech woods. At Boldre Hill, near Lymington. In woods (West Meon), frequent; Miss E. Sibley. Holt Woods; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Wood at Cams. Down-lane chalkpit (Fareham); Mr. W. L. Notcutt. I once found a flower of this plant with six divisions, including within a single perianth a double set of stamens, and two ovaries,—perfectly distinct, yet without any appearance as if two of the blossoms had cohered and grown into one. This beautiful evergreen shrub is always in full flower here by the beginning of February, and in most years as early as January. The Rev. G. E. Smith tells me that the Spurge Laurel (called, in Hants, Wood or Copse Laurel) is collected in large quantities from the woods in Sussex, by persons who go at certain periods round the country for that purpose, and bring it to the markets of Portsmouth and Chichester, where it is sold as a horse-medicine, but he was unable to ascertain for what diseases it was employed,—probably as an epispastic, from its great acrimony. I have known it so collected in this island. The pulp of the ovoid, black berries is perfectly bland, as in the Mezereon, but the seed in both is intensely acrimonious. *Passerina annua*, not rare in the extreme north of France, may possibly be found hereafter in the south-east of England.

Thesium humifusum (*T. linophyllum*). On chalky banks, downs, and dry, open pastures, more commonly in high than in low situations. Very frequent in the Isle of Wight. On Ashey Down, and elsewhere near Brading. Plentiful in the Lentenfield Pit, by Carisbrook. On grassy slopes between the woods in the valley near Rowledge, pretty plentifully. On chalky banks facing the sea at Ventnor; Miss G. E. Kilderbee !!! Common on the downs about Ventnor; Dr. G. A. Martin !!! Near the Lighthouse, Freshwater Down; Rev. G. E. Smith !!! Chalk cliff on the south side of the Isle of Wight; Dr. Stokes in With. Bot. Arr. Spit at Norton; Banks near Colwell; Brading Down. Afton and Freshwater Downs, in great abundance; Mr. W. D. Snooke, Fl. Vect. !!! Not, I believe, unfrequent in mainland Hants, but except in a station I shall speak of presently, I have never seen it off the chalk. I feel pretty certain of having seen it on St. Catherine's Hill, Winton. Once found on some high downs between Old Alresford and Stratton, 1828; Mr. Wm. Pamplin in New Bot. Guide. Flower Down, near Winchester. Basingstoke; Martyn (Bot. Guide.) Maindell chalkpit; Mr. W. L. Notcutt ! Itchen Stoke; Miss L. Legge: and doubtless very widely dispersed over the whole cretaceous system. On the short, close turf of our high downs the Thesium is extremely dwarfed and diminutive, and its habit of growth not well displayed; but in lower, more sheltered places—as on grassy banks and chalk slopes—it acquires a very large size, and the copiously branched stems spread in all directions on the ground, or sometimes in a fan-shaped manner, to the extent occasionally of eighteen inches or more; when growing amongst taller plants, erect or ascending at their extremities. This prostrate form, which is particularly fine on the sloping sea-banks in Ventnor Cove, I have long been accustomed to regard as probably the T. linophyllum, var. *β. humifusum*, of Duby's 'Synopsis,' the T. humifusum of De Candolle's 'Flore Française,' and which Mr. Babington has adopted in the 'Manual' for the T. linophyllum of British authors; that so called by Linneus being probably made up of several species now regarded as distinct: but I confess the European plants of this genus appear some of them to be separated by characters savouring of too much discriminative refinement. The Rev. G. E. Smith, who remarks our Thesium to be "astonishingly abundant and very fine" at Ventnor, observes that it occurs there very frequently with proliferous extremities. At Norton, in Freshwater, it grows on the loose sand of the flat sea-shore at the western end of the Spit. Here the central stems are erect or ascending at base, and much stouter than the lateral and exterior, that are prostrate or procumbent. The thick, yellowish, woody root is said by Mr. Mitten to be parasitic. The little white flowers have a remarkably neat look, and the tuft of white hairs on the perianth—reaching up to, but not united with, the anthers—is a curious part of their structure, the use of which is by no means apparent.

‡*Aristolochia Clematitis.* Naturalized about habitations and old ruins, especially of religious hooses; very rare. Under the old garden wall of the monastey of St. Cross, near Winchester; Dr. A. D. White !!! At Borden Lodge, Wolmer Forest, near Linford Headley; Mr. Prettyjohn !!! Abundant in both places, and in each introduced before the memory of the present occupiers. Borden Lodge is an old and lonely tenement on a wild part of Wolmer Forest, now inhabited by a Mr. Wm. White, I think one of the forest keepers: the Aristolochia was growing in considerable plenty in sandy, cultivated ground along the palings in front of the house, and amongst potatoes, when I visited the spot in September last; one specimen was gathered in fruit, which I believe is rarely perfected when formed, and this it seldom is from peculiarity of structure in the flower opposing an obstacle to impregnation of the ovary, besides the disposition the plant has to increase by the widely creeping root. Mr. White being from home when I called, I was unable to learn whether the Birthwort occurred in other places about the premises, but I understand the date of its introduction is unknown to him and his forest neighbours, who regard it as a nameless curiosity, and from its strong smell endowed, probably, with great medicinal virtues.* Although unquestionably not indigenous, the Birthwort is perfectly and permanently established in both stations, beyond all likelihood of extirpation, and quite as much at home here as in any of the recorded British habitats that I have seen, which are all equally artificial in their origin with our Hamp-

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* See p. 668 of the present volume.

shire ones. Hooker (Brit. Flo.) gives "copses and pastures," as well as "amongst old ruins" in the east and south of England: what known stations are there in this country for the Aristolochia answering to the former description? Hudson (Fl. Angl.) says, "Habitat in sylvis et sepibus;" Relhan also (Fl. Cantab.), "Woods and hedges:" neither of these authors makes mention of ruins as an habitual locality for the plant. Of what kind are the Kentish and Cambridgeshire habitats alluded to in the works just quoted? I once found Aristolochia Clematitis apparently wild in a wood in the Park of St. Cloud, and many stations are given for it in the excellent Paris flora of Cosson and Germain, whilst it abounds in rough, stony places in the south of France, perhaps truly spontaneous; yet is it more frequently seen as a septal, viatical or ruderal, than as a sylvestral species in middle and western Europe,—the phrase of its occurrence generally being, "Habitat in vineis, cultis, sepibus." It is assuredly most abundant and at home in the east of Europe,* whilst its oriental prevalence is strongly hinted at in the old English name of Saracen's Birthwort, which may countenance a suspicion of its having been perhaps introduced to this country, and even to western Europe generally, by the crusaders on their return from Palestine, as a medicinal plant. I have, however, shown in other parts of these Notes, the danger of drawing conclusions from such uncertain premises, and however harmless and allowable it may be to put forward deductions of this kind as purely speculative, they ought never, I think, to be adduced as grave arguments against the indigenous claims of a species, or made an excuse for imposing or continuing the symbol of doubt in the absence of better testimony.

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* Frequent, for example, in the Russian Steppes, in which country it occurs as far north as Moscow, lat. 55° 45'. I have seen it plentiful in the Brigittenau at Vienna, where it is truly indigenous, and furnishes the only pabulum of the larva of the beautiful butterfly Thais Polyxena, which is sometimes plentiful about the Austrian capital.

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight,
January, 1850.

(To be continued.)

Explanatory Notes on certain British Plants for distribution by the Botanical Society of London, in 1850. By H. C. Watson, Esq.

When last year addressing to the 'Phytologist' (Phytol. iii. 478) a paper on the same subject as this present one, two circumstances appeared to me to be very probable: first, that I should not continue a member of the Botanical Society of London later than 1849; and, secondly, that the Society's periodical distribution of specimens would either cease altogether or commence a rapid decrease in value and regularity. Neither of these expectations has been practically verified at present.

The Society's distributions have been continued mainly through the opportune and valuable assistance given thereto by Mr. French, of London, and Mr. Moore, of the Chelsea Garden. Without the energetic aid of these powerful allies Mr. Dennes might have been left alone, and would in that case have found himself quite unable to effect the arrangement and distribution of the specimens. All three of these gentlemen have professional avocations to occupy closely their time and attention by day; and they were enabled to manage the botanical distributions of last year only by devoting entire nights to the task. How long their botanical zeal will urge them to this annual exertion and sleep-sacrificing devotedness in carrying out the objects of the Society, it might be unsafe to predict.

As for myself, although I have renounced individual responsibility in the future management of the Botanical Society of London, and will not be answerable for the dead-lock, towards which some other members are fast forcing it, I find that there still exists a tie strong enough to hold me to the Society as an acting member,—one that cannot be curtly cast off, or materially loosened at present, without some breach of good faith to the *foreign* contributors. Steps have been taken under my own suggestion, and mostly through my own correspondence with botanists abroad, which have virtually placed the Botanical Society of London under pledge or promise to distribute any foreign specimens that may be sent to it, and also to make a return for the same to the respective contributors. Several of these foreign botanists not unreasonably look to me for the fulfilment of the Society's promises that have been conveyed to them by or through me; and so far as this can be accomplished by an individual member of a Society, while struggling against very serious impediments, consequent on the disorderly management of other parties, I may acknowledge myself under a sort of obligation to carry out and act up to the promises so given. Hence I have remained a member; and during the past year I have devoted considerable time to the distribution of the foreign specimens; many of which, indeed, had been originally the duplicates from my own herbarium.

In respect to the British specimens for distribution in 1850, my interference and responsibility are only the same as they were last year. Early in January, I very rapidly looked through all the British parcels that had been received between Michaelmas and Christmas; dividing the specimens into three assortments, as heretofore; namely: firstly, novelties and varieties not included in the second edition of the 'London Catalogue of British Plants,' together with doubtful species or specimens requiring some more special explanation than their labels can convey; secondly, those labelled under incorrect names, or sent (contrary to regulation) not labelled ready for distribution; thirdly, the great mass of the specimens that I saw no reason for placing in either of the two former assortments, while passing them hastily under view; although it is far from improbable that some of these last would have been separated also, if I could have spared time to examine the specimens and labels more closely and completely.

It is on the specimens placed in the first of the three classes mentioned, that I now propose, as in several preceding years, to make some explanatory comments addressed to the members who may shortly receive the plants. Divided into sets, these specimens will be made up into small packets, as far as they will go; leaving only three or four of the species for introduction separately into the desiderata parcels of those members whose names may stand lower down in the return-list.

This winter, unfortunately, the supply of "Novelties, &c.," is not so good as might have been expected, either in number of species or number of specimens. But not unlikely I may, in my haste, have passed over some of the novelties without recollecting at the moment that their discovery dates later than the last edition of the Society's Catalogue. Indeed, Anacharis Alsinastrum is left out of the "Novelty" group in this way; for, having heard so much about this plant and its localities in 1848 and 1849, I did not recollect at the time of looking through the parcels, that the first announcement of it in Britain had occurred while the Catalogue was in the press. I presume, however. that almost every member received a specimen last year.

Violæ caninæ (of Authors). These violets are the most numerous among the specimens for particular comment,—not as novelties, indeed, but as examples to illustrate and elucidate what has been greatly confused and misunderstood. In a paper printed in the 'Phytologist' for September last, I distinguished the British violets that have passed under the name of "canina," into three apparent species (Phytol. iii. 638), denominated those of Gerarde, of Dillenius, and of Smith. The first of these three is abundantly common in England, and is known to every botanist; the second is probably frequent, including forms of varied luxuriance which have been variously named; the third I suppose to be quite rare comparatively with the other two.

Viola (*canina*) *sylvatica* (Fries). The first species, or *Gerarde's violet,* has never been distributed from the Society, simply because it is everywhere common in England. Nevertheless, in the course of last summer I became well convinced that it would be necessary to distribute correctly labelled examples of this very common species, in order that the members of the Society might clearly understand to which of the Canine violets the name of "sylvatica" is applied correctly. I label my examples of Gerarde's violet under the two names of "Viola sylvatica, Fries,—V. canina, Sm." These two names may be taken as synonymous, although doubtless Smith would have applied the name of "canina" equally to the larger examples of the second species. Most of my specimens are in their autumnal state, the season being far advanced before I felt the necessity for distributing this species along with the next, in order to make both be understood by comparisons. The dwarf form of V. sylvatica, which the late Mr. E. Forster mistook for (or, perhaps, more strictly, mingled and confused with) Smith's Viola flavicornis, I must hope to procure for distribution in the spring of 1850; having been too late for it in 1849.

Viola (*canina*) *flavicornis* (Smith). The second species, or *Dillenius's violet,* was distributed by the Society in the last and preceding years, from Claygate, in Surrey, from Tiptree Heath, in Essex, from the sand-hills near New Brighton, on the coast of Cheshire, and sparingly from some few other localities. The numerous specimens for distribution in 1850, are partly from my own neighbourhood in Surrey, collected about Esher and Claygate; and partly from New Brighton, collected by Mr. Francis Brent and Mr. Thomas Sansom. I think that the specimens from Surrey and Cheshire will equally be referred to the species first distinguished, in this country, from V. canina-sylvatica, by Dillenius; although both he and Smith appear to have erroneously supposed that their species (V. flavicornis) was always of small size. The Botanical Society has never received specimens of true Viola lactea (Sm.). At least two dissimilar forms (possibly belonging to two different species) have passed under this latter name, and among botanists who might be supposed very likely to know the species of Smith. Indeed, Smith himself probably mixed two species; for the plant figured as V. lactea in 'English Botany' is scarcely the same with the specimens preserved in Smith's herbarium as V. lactea.

"*Viola Curtisii*" (?) — *V. Rothomagensis?* Again this dubious plant, intermediately resembling both tricolor and Curtisii, comes before us from the New-Brighton sand-hills, on the Cheshire coast, sent by Messrs. Brent and Sansom. The labels bear the name of "Curtisii," as quoted; and while I cannot affirm this to be correct, equally I feel unable to assert that it is incorrect. See 'Phytologist,' iii. 46, and 'Cybele Britannica,' i. 183, for the grounds of this uncertainty. Although our coast plant is much less hispid than French specimens of V. Rothomagensis, the plant of the Cheshire coast closely resembles that alleged species in other respects. Another link in the series, standing between Curtisii and Rothomagensis, is the yellow-flowered and hispid Viola from Portugal, numbered 391 in the 'Flora Lusitanica' of Welwitsch, but distributed by him without specific name on the label,

Poterium muricatum (Spach). Mr. Gibson has sent some examples of this species, which will probably be the most acceptable plant in the parcels of this winter to some of the members. There seems good ground to anticipate, however, that it will be found in numerous localities when looked for. It should be collected in the seeding stage, as being then more readily distinguished from ordinary P. Sanguisorba. The name of muricatum may perhaps have to be suppressed in favour of another. See 'Phytologist,' iii. 707 and 715, for reports of localities.

Melilotus arvensis (Wallr.). The supply of this species is very limited. For the specimens received the Society is indebted to Mr. F. J. A. Hort, who labels them from Bottisham Lode. See 'Phytologist,' iii. 344 and 481.

"*Fumaria agraria* (Lag.)." In his valuable contribution, Mr. Hort sends also several examples of this plant, which is rather a novelty by name than by reality; for it is, perhaps, the most frequent form of "F. capreolata," as formerly understood by English botanists. Doubtless many botanists have it already in their herbaria under this latter and older name. Distinguishable from the typical F. capreolata, by its smaller sepals, darker flowers, and pedicels not at all or very slightly recurved, with some other less obvious characters. It is a curious circumstance in connexion with this species, that Mr. C. C. Babington has referred three specimens of an Azoric Fumaria, grown under different conditions of place and season, to as many different species, so called; namely, to F. capreolata (var. media of Webb), "scarcely a variety,"—to F. muralis,—and to F. agraria, when raised in England from Azoric seeds. See Bot. Gaz. i. 63. To my eyes, after examining scores of those Azoric Fumarias, living and dried, they seem all to belong to one single species, and to be so little different, and so gradually dissimilar, as to be scarce worthy of separate names, even in the light of varieties only. But whatever be thought about this English F. agraria as a species, it is certainly no new discovery; being the F. capreolata of various local writers and collectors.

Stachys ambigua (Smith). Most of the specimens that have been sent to me, labelled under this name, have been ordinary examples of S. palustris with the leaves slightly stalked. To assist in correcting this frequent error, I last summer dried about thirty specimens of the true plant of Smith, or what is understood to be such by myself. These will be distributed in the Society's parcels; because any botanist who may possess S. palustris in his herbarium, labelled as S. ambigua, will not be likely to mark Smith's plant as a desideratum. My specimens are partly from the parish of Long Ditton, in Surrey, and partly from the adjacent hamlet of Hook. Those from the former were found in a bean-field, and are full length specimens; those from the latter locality were collected in a ditch, from which they grew up through thick bramble bushes, with stems too long and straggling to be extricated and pressed in whole lengths. Both S. sylvatica and S. palustris abound in the vicinities; but the stations of S. ambigua are each limited to a very small space of ground.

"*Sinapis Cheiranthus* (Koch)." Some five or six specimens of the Sinapis from Gower, in Glamorganshire, have been sent to the Society, thus labelled, by Mr. Henfrey. I should rather have named them S. monensis, on account of the glabrous bases of the stem and leaves, which have only a very few scattered bristles at most; while in real S. Cheiranthus of the French coasts, these parts are plentifully hispid. The pods of the Welsh plant are also more distinctly angular. S. monensis may, however, be simply a variety of S. Cheiranthus; or this a variety of that. These few specimens are placed among the doubtfuls, because I could not feel warranted in erasing the name written on their labels by the contributor, although I still regard that of 'monensis' to be the correct name for the Welsh specimens, while both stand in the Society's Catalogue. See 'Cybele Britannica,' i. 165, were the doubts concerning this Welsh plant were particularly mentioned. I presume that Mr. Henfrey adheres to the original announcement, reporting the plant as "S. Cheiranthus."

Arenaria media (Linn. ?). Mr. George Maw has sent some examples of this plant, under name of A. rubra, and located from Hartland Quay, North Devon. I have ventured to add "var. media" on the labels. It is distinguished from the true A. rubra by its perennial root and other slight characters, and is perhaps often commingled with the other marine Arenaria, with larger flowers and winged or bordered seeds, which represents the Linnean A. marina in several English herbaria. Example of this latter are also sent by Mr. Maw, and are distributed with the A. media (?), in order to facilitate comparisons between these maritime and allied, yet probably distinct, species. To which of them do the names of "media" and "marina" truly belong ? Some authors give the name of media to the plants with winged seeds. See 'Phytologist,' iii. 321 and 482. In cases where confusion has occurred, and is likely still to occur, between two resembling plants, it is an excellent plan to send equally numerous examples of both, even although one of them may be quite a common plant. I have only to regret that Mr. Maw did not send 50 or 100 specimens of each. Indeed, in this, as in many other instances, the Society's rule which directs members to send *few* species, but *many* specimens in their parcels, would have well applied. The best parcels of British plants received by the Society, include only three to six species, with ten, twenty, fifty, or even a hundred specimens of each, according to rarity or novelty. Parcels of this kind not only save a vast deal of trouble to the distributors in London, but in the aggregate they produce also a much better collection and supply of rarieties. Parcels that include many species, few specimens of each, give far more trouble, and are worth less in their aggregate result when all brought together.

Lastrea uliginosa (Newm.). Mr. Thomas Moore sends a few cultivated examples of this fern, which has recently been described by Mr. Newman as a species distinct from L. spinosa and L. cristata, both which it resembles a good deal in the intermediate form of the frond, character of rhizoma, &c. Mr. Moore labels it a variety of L. cristata, while Sir William Hooker deems it barely a variety of L. spinosa. Some years ago, Mr. Wardale sent a large supply of L. cristata to the Society; and among the specimens were many examples of the fern since named L. uliginosa. All were labelled alike, by name of cristata, and with printed labels. But observing the difference of character, I made a large mark of interrogation "?" on the labels of the uliginosa form, with pen and ink; and I presume that they have been thus distributed from Bedford Street. See 'Phytologist,' iii. 677, for Mr. Newman's description of L. uliginosa.

Cystopteris fragilis var. *Dickeana* (Moore). Mr. Thomas Moore has likewise sent a dozen cultivated examples of this peculiar form, which will assist in making it known to members. On seeing them, botanists will be almost induced to pronounce the plant distinct from C. fragilis, polymorphous as that species (if not group of species) is known to be. The reference is to Mr. Moore's work for description.

"*Hieracium sylvaticum* c. *pictum* (Hook.)." Plants thus labelled are sent by Mr. Thomas Kirk from Arbury Hall, Warwick. I do not myself know the plant so named by Sir William Hooker. Mr. Kirk's specimens appear to me one of the connecting links between H. sylvaticum and H. maculatum of Smith; rather less spotted and rigid than the state in which the latter is usually found.

"*Polygala depressa* (Wender.)." Dr. Mateer has sent several good examples of a Polygala thus labelled. But I do not see how it can be described by written characters, so as to distinguish it from our ordinary P. vulgaris. The "five-flowered raceme," on which Koch puts an emphasis, is clearly inadequate if these specimens are rightly labelled; the number of flowers being very variable, and "ten" would likely be nearer the average than "five."

"*Atriplex patula deltoidea* (Bab. ?)." Mrs. W. Jones has sent specimens of an Atriplex thus named, from Eastbourne, in Sussex, and from Woolwich, in Kent. I know Mr. Babington's A. deltoidea only from a starvling and indifferent Guernsey specimen, which he kindly took some pains to obtain for me. Putting that one specimen beside the luxuriant plants of Mrs. Jones, there is considerable dissimilarity; but I can readily conceive that mere luxuriance of growth might cause differences as wide between examples of a single species of Atriplex. Those of Mrs. W. Jones are probably to be referred to the same species with the common Atriplex of Surrey, which Mr. Babington declined to name; as mentioned in the 'Cybele Britannica,' ii. 325.

"*Bromus pseudo-velutinus.*" This is sent by Miss Barnard, from a field at Odsey, in Hertfordshire (or Cambridgeshire ?). It much resembles that usually dwarf and littoral state of B. mollis, which has been erroneously called "B. velutinus" by several British botanists. These inland specimens have culms fully four times as tall as the shore plant, and the pubescence of the glumes or pales is shorter. They are, indeed, simply examples of B. mollis, with the pedicels and spikelets much shortened, and the panicle thus rendered more close or compact. B. commutatus, *not B. arvensis*, was growing in the same field with the present.

Pyrethrum inodorum, proliferous variety. This interesting monstrosity is sent by Mrs. Russell, from Seaton, in Devon. It is highly proliferous, like the Hen-and-Chicken Daisy of the gardens; about a score of secondary heads springing from the axils of the involucral bracts, on pedicels of a quarter or half an inch in length. Several of these secondary heads are again proliferous, giving origin to a few tertiary heads. On a hasty glance the specimens might be referred to the order of Umbelliferæ, as likely as to Compositæ.

Hyacinthus non-scriptus, with foliaceous bracts. This is remarkable only for the continued production of leafy bracts during several successive years after removal into my garden. The original wild specimen, growing under a hedge, in Claygate, Surrey, had leaf-like bracts of three inches long to each flower. In the garden, in dry ground, and exposed to the sun, they have become reduced to half the size; but still, each year, a few long ones are produced. There are other varieties and monstrosities, sufficiently explained on their labels, or sufficiently obvious without explanation.

Rubi. The Society is indebted to the Rev. A. Bloxam for a series of specimens in duplicate, which will doubtless be acceptable to those members who delight in these troublesome bushes. I regret, however, to see them sent with loose labels; a probable consequence of which will be, that half of their labels will get misplaced to the wrong species before they reached their final destinations. Mr. Bloxam is doubtless a very methodical and accurate botanist; and, as such, he will scarcely conceive the necessity that exists for guarding against the thorough confusion and commingling, and almost utter absence of order and method, which prevail at No. 20, Bedford Street. The Rev. W. A. Leighton also sends some Rubi, but these are mostly single examples of a species, not in duplicate, and therefore little available in a distributing society.

Cultivated Plants. Several plants are distributed from my garden, either because there is difficulty in obtaining wild examples of the species, or for some other special reason. Mr. Thomas Moore also sends a considerable number of garden specimens, which I have not separated from the general stock of duplicates, but have preferred to leave them there, whence their own contributor, one of the active distributors of the Society, may arrange and distribute them as he shall think fit. In reference to the distribution of garden-grown specimens, however, I would here make a remark or two. In the instance of species where there is difficulty or impossibility of obtaining wild examples enough, or when there is some special point to be illustrated, or some comparison to be made, in which the garden-raised specimens may usefully assist,—in any of such instances I would willingly distribute cultivated plants, as a necessity or utility. But, otherwise, it does not appear desirable that members should fall into the practice of contributing garden plants, simply as examples of species, wild specimens of which can readily be obtained by marking their names in the Society's list of desiderata. As an instance where the distribution of garden-grown specimens of very local species, in the absence of wild specimens, seems to be quite allowable and desirable, I may refer to Mr. H. O. Stephens's examples of the very rare Allium Ampeloprasum, garden grown, from roots originally procured at the locality of Steep Holmes. But there could be no call or necessity whatever to substitute garden examples of Anacharis Alsinastrum, Cladium Mariscus, and other things which, although somewhat local and even novel, can be got in any quantity at their natural localities, easily within reach of various members of the Society.

Misnomers. I am happy to say that the misnomers are now quite few comparatively with those on the labels formerly sent to the Society, or committed by the curators and distributors in Bedford Street. The number of these errors would ere now have been still more reduced, if I could have persuaded Mr. Dennes to adopt a practice which appeared very desirable in my own eyes, but to which he always seemed disinclined or indifferent. My constant effort has been to render the Botanical Society instrumental in correcting or preventing those errors of name which are continually causing false records of localities to be printed, through the name of a wrong species being mistakenly connected with the locality recorded. But our valuable Secretary (who really cares nothing about botanical *science*, although caring so much, and doing so much, for the Botanical *Society*) cannot enter into my views in this respect. I have repeatedly urged that an example of any misnamed species, with its label corrected, should be returned to the member who sent it, in his next parcel from the Society. This course not being taken, although expressly announced in the 'Regulations,' the contributor of mislabelled specimens is of course *confirmed in his error.* A striking instance occurred in a parcel received this winter. Numerous examples of Anthriscus vulgaris and Arabis hirsuta were sent labelled under the false names of Caucalis daucoides and Turritis glabra. The specimens were excellently dried, with their labels printed in full. Here the contributor had taken much trouble in collecting and drying the plants, and had incurred some expense in printing their labels,—all for nothing; the labels being erroneous, and the species collected not being required at all. Now, one or both the same misnomers had been sent by the same contributor on a former occasion, also with the labels printed; and if a specimen and corrected label had been then returned to him, his repetition of useless trouble and cost might have been avoided; and the Society might have got something useful instead of the same useless errors being sent over again.

Unequal value of the parcels. Before concluding the present notice, which has already become rather lengthy, I would yet say a few words on this subject. There is enormous inequality in the value of the parcels, in respect to the selection, the drying, and the labelling of the specimens. One parcel from Mr. Gibson, Mr. French, Mr. Taylor, Mr. Salmon, the Rev. Mr. Crotch, and others who might be named, is worth ten or twenty parcels from as many other members, whose names I will not just now mention in the disparaging contrast; and the rather, because in some instances the real fault may rest with the Secretary in omitting to give copies of the 'Regulations' to new members. The difference between the two sets of contributors otherwise is, that the former act up to and in accordance with the printed 'Regulations' issued by the Society; while the second set appear to hold themselves at liberty to attend to the rules as little as possible, and thereby to give as much trouble as they may choose to the distributors in London, and to make a valueless donation for the good specimens they obtain through the attentive exertions of the former class of good contributors. The Society musters near two hundred and fifty members. For my own part, I wish heartily that it had only the fifty, and was without the two hundred. But far the greatest '*desideratum*' in the Society is that of a *Curator*, qualified for his work by a competent knowledge of species, who would wholly relieve Mr. Dennes from the duties of that office, which are unfairly, and not wisely and profitably, added to those of the over-tasked Secretaryship. Three qualities are required in a Curator for a distributing Botanical Society; namely, clear knowledge of species,—methodical arrangement,—rapidity of thought and action. Neither Mr. Dennes, nor any one of the four successively appointed Curators, has possessed all three qualifications; while a majority of the five have only brought one of these qualifications to a task which required all of them. I have remarked that a competent Curator is the *chief desideratum*: it is almost the only want in the Society now; for all the other requisites appear to be attained, or to be within reach of attainment. But I still see that the single want is greatly disarranging, and I fear that it must shortly arrest, the whole machinery and action of the Society.

HEWETT C. WATSON.

Thames Ditton, Surrey, Feb. 1, 1850.

Contents of 'Hooker's Journal of Botany,' Nos. 1—14; *for* 1849-50.

REFERRING to the slight mention of the above periodical, under its change of name and price, in former Nos. of the 'Phytologist' (Phytol. iii. 452 and 776), we proceed now to give the list of 'Contents' of the back numbers, preliminary to a monthly continuation of the same.

Number 1.

Extracts from the private Letters of Dr. J. D. Hooker, written during a Botanical Mission to India.

Notes and Observations on the Botany, Weather, &c., of the United States, made during a tour in that country in 1846 and 1847. By Wm. Arnold Bromfield, M.D.

Botanical Information. Notices of Books.

Number 2.

On the Awns of Nepaul Barley. By the Rev. J. S. Henslow.

Extracts from the Letters of Dr. J. D. Hooker. Continued from the former No.

Botanical Information. Notices of Books.

Number 3.

On the genus Triguera of Cavanilles. By John Miers, Esq.

Dr. Thomas Thomson's Scientific Mission to Thibet.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information.

Number 4.

Decades of Fungi. By the Rev. M. J. Berkeley.

Dr. Bromfield's Notes on the Botany, &c., of the United States. Continued.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 5.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

On the genus Atropa. By John Miers, Esq.

On Anatropal and Orthotropal Ovules. By Benjamin Clarke, Esq.

On some Chinese Plants. By H. F. Hance, Esq.

Botanical Information. Notices of Books.

Number 6.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Notes on new or little known Plants of China. By H. F. Hance, Esq.

Botanical Information. Notices of Books.

Number 7.

Charæ Australes et Antarcticæ. By Dr. Alexander Braun.

Some Account of the Vegetable Ivory Palm (*Phytelephas macrocarpa*). By the Editor.

Botanical Information. Notices of Books.

Number 8.

On the genus Withania. By John Miers, Esq.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Decades of Fungi. By the Rev. M. J. Berkeley.

Descriptions of some new Genera and Species of Plants, collected in the Island of Hong Kong, by Capt. J. G. Champion, 95th Regt. By George Gardner, Esq.

Botanical Information. Notices of Books.

Number 9.

On two Balsam Trees (*Balsamodendra*) from Scinde. By J. Ellerton Stocks, M.D.

Dr. Bromfield's Notes on the Botany, &c., of the United States. Continued.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 10.

On the Structure of the Pistil in Eschscholtzia Californica. By the Rev. J. S. Henslow.

On a Fungoid Gall from Pará. By the Rev. M. J. Berkeley.

Characeæ Indiæ Orientalis et Insularum Maris Pacifici. By Dr. Alexander Braun.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Description of Plants collected in Hong Kong. Continued.

Botanical Information.

Number 11.

Description of Plants collected in Hong Kong. Continued.

Pucha-Pat, or Patchouli (*Pogostemon Patchouli*). By Sir W. J. Hooker, K.H., &c.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 12.

Genera Floræ Americæ Boreali-Orientalis Illustrata. By Isaac Sprague; with descriptions by Asa Gray. [An explanatory notice of the work, with criticisms on one or two technical points; evidently not from the pen of the usual writer of the "Notices of Books."]

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 13.

Remarks on the Flora of the Nicobar Islands. Translated by Dr. Wallich.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Number 14.

Contributions to the Botany of Western India. By N. A. Dalziel, M.A.

Decades of Fungi. By the Rev. M. J. Berkeley. Continued.

Note on Microcachrys, *Hook. fil.*, and on a new allied genus of Coniferæ of Van Diemen's Land. By William Archer, Esq.

Extracts from the Letters of Dr. J. D. Hooker. Continued.

Botanical Information. Notices of Books.

Contents of the 'Botanical Gazette' for February, 1850.

Review of the Swiss Characeæ. By Al. Braun. [Translation from the 'Flora' of March 7, 1849.]

Cornish Plants not included in the 'Cybele Britannica.' By Francis P. Pascoe. [A list of species, ascertained by Mr. Pascoe, or reported on other authority, to grow in the county of Cornwall; but which are not specially mentioned as Cornish plants in the first volume of the 'Cybele Britannica.' Sixty-eight species are enumerated, including some introduced plants, and about twenty which have not been seen by Mr. Pascoe himself, either living or in a dried state. Ranunculus tripartitus (E. B. Supp.) may be added to the list.]

Literature. Including a review of Harvey's 'Manual of the British Marine Algæ'; and monthly list of contents of botanical journals.

Proceedings of Societies. Botanical Society of Edinburgh; Tyneside Naturalists' Field Club; Alnwick Scientific and Mechanical Institution.

Miscellanea. Record of Localities; Additional Note on the capsules of Viola, by W. H. Purchas, Esq.; Natural History of the Date, from Journ. de Pharmacie et de Chimie; New method of drying plants; Collections of Zeyher's South African Plants on sale.

Extracts from the 'Proceedings of the Linnean Society of London.'

(Continued from page 789.)

On the Development of the Ovule in Orchis Morio, L., by ARTHUR HENFREY, Esq., F.L.S., &c.

THE paper contains the results of a series of observations made in May, 1848, which Mr. Henfrey presents to the Society, partly because he believes that in the present state of the question all evidence derived from careful observation is of some value, and partly because he has succeeded in obtaining a more complete series of figures illustrating the successive conditions of the ovule than has yet been published; Mohl, who gives the most complete account of the development in Orchis Morio, having given no drawings. In the first stage, examined on the 3rd of May, the ovules of flowers which were just opened and were without signs of pollen on the stigmatic surface, were just curving over towards the anatropous position; the nucleus projected beyond the cells forming the single coat of the ovule, and consisted of a large central cell (the embryo-sac) enclosed by a layer of very delicate cells of small size, constituting a proper coat of the nucleus. On the 9th, the ovules of fully-expanded flowers were not much altered, except in the much clearer definition of the walls of the cells. The embryo-sac was filled with a clear colourless fluid, in which floated minute black atoms. In some flowers the stigma was smeared with pollen, which sent down numerous tubes, about $\frac{1}{4000}$th of an inch in diameter, and at most one-fourth of the size of the smallest surrounding cells. On the 13th, when the flowers were withered and the stigmas were covered with pollen, a dense bundle of tubes lay in the midst of the lax tissue of the canal leading to the cavity of the ovary. Some of the ovules were completely anatropous, while others were about three-fourths curved, the forming being about $\frac{1}{100}$th of an inch in length. The two coats of the ovule were now distinctly evident, and the nucleus was still covered by its own cellular coat, and still contained only the clear colourless fluid with black points. On the 16th, the pistillary cords extended nearly to the base of the ovary, presenting all the characters of pollen-tubes, and apparently continuous with those derived from the pollen on the stigma. Both coats of the ovules had become considerably developed, and the inner had grown up far beyond the nucleus; the embryo-sac had lost its proper cellular coat, had acquired the aspect of a large ovoid sac attached by a pedicle to the chalazal region, and contained opalescent mucilaginous matter (protoplasm), in most cases accumulated at the ends, chiefly at that next the micropyle. On the 20th, the last-mentioned appearance continued; and at the micropyle end, one, two or (usually) three minute vesicles had been formed, always seeming to originate as cavities in the mucilage, and not as if derived from the formation of a membrane on the outer surface of a nucleus or cytoblast. These vesicles soon took the apperance of distinct cells with exceedingly delicate walls, and undoubtedly existed before the pollen-tubes entered the foramina of the ovules. In those ovules which had been penetrated by the pollen-tubes, these were traced by Mr. Henfrey through the wide mouth of the outer coat and the narrow canal of the inner, as far as the apex of the embryo-sac, which however they never entered, but generally appeared to be directed a little to one side and to lie in contact with its outer surface, just over the place where the minute vesicles lie within. On the 31st, the previous observations were repeated and confirmed on specimens in various stages of growth. At this period, in some of the embryo-sacs one of the vesicles had become divided into two cells by a horizontal septum, the upper cell dividing again and growing out through the endostome in a conical form to produce the confervoid filament described by Mr. Brown, and which Mr. Henfrey believes Prof. Schleiden to have mistaken for the pollen-tube. On the 3rd of June, the author again satisfied himself that the vesicle within the embryo-sac (the germinal vesicle) is the first cell of the embryonic body; it generally exhibits a slight collection of protopalsm at its base, and soon after the pollen-tube reaches the surface of the embryo-sac divides into two cells, the upper dividing again and growing into the articulated filament, the cells of which are formed by the production of septa in the same way as in confervas, hairs of phanerogamous plants, &c.; the mucilaginous layer (or primordial utricle of Mohl) being rendered very evident by the application of iodine. At the same time the lower part of the embryonic body enlarges and soon perfectly fills the embryo-sac, the process of cell-formation by which the embryo is produced varying apparently in different cases. Generally the lowest cell enlarges very much and becomes filled with dark mucilaginous matter, and then this is soon divided into a number of cells by the formation of septa. In some cases two of the germinal vesicles undergo development, and two confervoid filaments are produced.

From these observations Mr. Henfrey concludes that the embryo is really produced by the ovule itself; that the germinal vesicle exists within the embryo-sac before the pollen exerts its influence; that the pollen-tube penetrates the coats of the ovule to reach the embryo-sac; and that the passage of the pollinic fluid through the intervening membranes impregnates the germinal vesicle, and determines its development into an embryo. The investigations having been made with every precaution, and the results being in perfect accordance with those of Amici, Mohl, Müller and others, he believes them to be a sufficient refutation of Schleiden's views so far as the plant in question is concerned. He regards, however, as points requiring further investigation, the question whether the whole of the pistillary cords are composed of filaments directly produced by the pollen granules; whether there is any relation between the application of the pollen on the stigma and the development of the germinal vesicles; and whether the production of the confervoid filaments is a normal process, which is open to doubt when only observed in ovaries containing such an abundance of ovules as those of Orchis Morio.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 768).

Empetrum nigrum, although now apparently extinct, has certainly occurred in Sussex (near Amberley), and may therefore be looked for with some hopes of success on our boggy tracts and forest peat. Its discovery would be an acquisition to the Hampshire flora of no small interest, as being at once the type and sole British representative of the small order Empetraceæ.

The Box (***Buxus sempervirens***) should be looked for on the northern slopes of our chalk downs. It is profusely abundant on most parts of Sidon (Sidedown) Hill, in Highclere Park (Lord Caernarvon's), scattered over its shelving sides as if quite spontaneous, and said to disperse itself freely by seed. I could not, however, satisfy myself of this fact by finding young plants newly springing up, and therefore omit it from the category of *naturalized* Hampshire species. It is an evident, and indeed acknowledged, introduction at Highclere, and only found on Sidon Hill, which is wholly within the boundaries of the park, the most extensive and picturesque in the county.* I believe there are no recorded habitats for the box on the continent quite so far to the north as the well-known and now sole existing station for this shrub in England at Box Hill, in Surrey,† but it is an undoubted native of calcareous hills in southern Belgium, between latitude 50° and 51°, within a degree of the Box Hill station, the aboriginality of which has by some been called in question as usual.

Euphorbia Peplis. On sandy sea-shores; extremely rare, and I fear now quite extinct in Hampshire. A single specimen found in Sandown Bay, in this island, now some years since, by J. S. Mill, Esq.! (Phytol. i. p. 91). Through the kindness of Mr. Mill I possess the above example of this rare British species from the most easterly station for it in Britain, if not in Europe. I have repeatedly searched Sandown Bay in the hope of again finding this Euphorbia in greater quantity, and am willing to believe that with Lathyrus maritimus, which formerly inhabited the Bay, its disappearance may be only temporary, as expressed under the head of that plant in these Notes. In 1835 I collected noble specimens on Slapton Sands, near Star Cross, Devonshire. From its intense purple colour, small comparative size, and perfectly depressed growth, it may be overlooked on a casual glance for a fragment of sea-weed. It belongs to a section of the genus with opposite, stalked, oblique leaves, furnished with stipules, prostrate stems, and a rudimentary corolla to the pistillate flowers, mostly found within the tropics.

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* The park at Highclere is thirteen miles in circumference, and besides Sidon Hill, is overlooked by the still loftier eminence of Beacon Hill, just outside the park, and the highest culminating point in the county. I have no hypsometric data as yet for the mainland of Hants, but the elevation of Beacon Hill must verge very closely on, if it does not exceed, 1000 feet.

† The Box is said to grow profusely at a place called Checquers, in Bucks or Berks, I forget which, as well as the name of the proprietor; but from the silence of our botanists on the subject I infer that the tree is at most only naturalized about the house and grounds, and perhaps quite as dubiously so as at Highclere.

Euphorbia Helioscopia. A common weed in waste and cultivated ground, corn-fields, neglected gardens, amongst turnips, potatoes, &c., in autumn and later summer months; occasionally, too, in the spring.

——— *platyphylla.* In corn-fields, fallows, waste and cultivated ground, and by road-sides; far from an uncommon species in the Isle of Wight, very often occurring in great abundance in tillage lands as a rather troublesome weed, but not very constant in its stations, which on that account it would be useless to give, except in a general way. Rather frequent about Ryde, at Quarr and Fishbourne; wheat-field betwixt Prestwood and Smallbrook farms, and near Westbrook farm betwixt Ryde and Nettleston, and found remarkably fine and abundant in a corn-field by Beaper farm between Ryde and Brading, some of the stems being nearly a yard high, and much branched. About E. and W. Cowes, by no means unfrequent in corn-fields, clover-lays, &c. About Yarmouth, Ningwood, Shalcombe, Gatcombe, Thorley, and in most other parts of the island, often in the greatest plenty. About Colwell and Brading; Mr. W. D. Snooke, Fl. Vect. Perhaps not less general in mainland Hants, but I have not remarked it in that part of the county myself. Matterly farm, about four miles from Winchester, towards Alresford; Dr. Sibthorp (Bot. Guide). Selborne (the var. E. stricta, E. B.); Mr. Yalden, *Id.* This last form, the E. stricta of Smith (an Linn.?), is a mere immature or starved state of the plant with simple or very slightly branched stems, as it commonly appears in the earlier part of the summer, when it seldom exceeds a foot or eighteen inches in height. The stem is very commonly furnished with a pair of opposite, ascending branches, springing from its very base, and far shorter than itself, but as the season advances these lateral stems or branches attain nearly the height of the middle or principal one, become, like that, much expanded at top into broad umbels, and the entire plant acquires a much larger size (often three feet in height), and a beautiful coral red colour. The E. stricta of Koch, found in the west of England, certainly comes very close to the present species in all its characters, as appears from excellent specimens I possess through the kindness of W. H. Purchas, Esq., of Ross, and from the living plant, which I had some few years ago in the garden, from Mr. Borrer, but have since lost. From what has been just said, it will be evident, I think, that these two species do not differ in size; the examples of E. platyphylla usually found in herbaria being mostly small entire specimens, as seen in corn-fields early in the summer, may have given rise to the opinion of its being a smaller plant than E. stricta of Koch. The leaves in every specimen of E. platyphylla that I have seen, like those of E. stricta, are more or less narrowed above their clasping and cordate base, giving to the outline of the leaf an elongate-oblong, somewhat obovate-oblong, strap or tongue-shaped form, equally conspicuous in each species. It is remarkable that Koch, who considers the Monmouthshire E. stricta as the Linnean species of that name, actually cites the E. B. figure of our E. platyphylla (the var. stricta, E. stricta, *Sm.*) as the true plant of Linnæus,* showing clearly how very closely the two are allied in botanical character and aspect, although it must be owned that the figure in E. B. is so defective from the miserably starved, or perhaps very young state of the specimen, that it might stand for either one or the other. E. platyphylla and E. stricta are probably really distinct, as their distribution and localities are different, the former being an agrestal and viatical, the latter a sylvestral species, each preserving its proper habitudes in this country and on the continent.

Euphorbia amygdaloides. A beautiful and most abundant species in woods, thickets, hedges, the shady borders of fields, and bushy places throughout the county and Isle of Wight. The earliest of all our Spurges, in very mild seasons beginning to flower, though sparingly, in January or February, and retaining its bright red shoots fresh through the winter, yet it is never in general and complete flower here till early in April.

Obs.—*E. Cyparissias* is plentifully naturalized in the shrubbery at Northwood Park, W. Cowes, the residence of the late George Henry Ward, Esq.; Miss G. E. Kilderbee !!! The Rev. G. E. Smith recollects gathering a Euphorbia with hairy fruit some years ago in a wood along the shore west of Ryde, which, as far as his memory serves, agreed with specimens of E. pilosa, *L.*, since seen by him at Oxford. Nothing of the kind has fallen in my way there yet.

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* Koch, Synop. Fl. Germ. et Helv. edit. secunda, p. 723.

Euphorbia Paralias. On sandy or pebbly sea-shores. In vast profusion along the wide beach of the south shore of Hayling Island, more particularly amongst the drift sand towards its western extremity, where this elegant species occurs for nearly a mile over some hundreds of acres, springing up by tens and hundreds of thousands, and forming bush-like clumps or tufts on the otherwise bare sand. First communicated to me by the Rev. G. E. Smith, and subsequently by Miss G. E. Kilderbee !!! Not known to me on any other part of the Hampshire coast, although we have other sandy tracts, but more limited in extent, both in the Isle of Wight and on the mainland, apparently as well fitted for its production. It is indeed remarkable that the seeds of this Euphorbia should not have been long since wafted across from Hayling Island to the almost opposite sandy spit or neck of land that nearly closes the mouth of Brading harbour, and which is barely seven miles S.W. from the nearest point of Hayling beach, where the plant most abounds. A similar sandy spit occurs at Norton, on the Freshwater side of Yarmouth harbour, and like that below St. Helens, is very similar in its vegetation to the Hayling beach, but does not produce the sea spurge. Desirous to know whether or not the absence of the Euphorbia in these stations, apparently so perfectly adapted to it, were merely accidental and unconnected with climatic or other causes hostile to its spontaneous growth, I last year planted roots and scattered seeds in the loose sand at each place, a few of which have vegetated, and should no natural obstacles exist to prevent its spreading, it is probable the Euphorbia will establish itself abundantly on these sandy spits, and become completely naturalized to this island. To prevent, therefore, its being announced as a new station for the species, or taken for an aboriginal Isle-of-Wight plant, I have put the fact on record, that before the year of grace, 1848, Euphorbia Paralias was an utter stranger on Vectian ground, and should it spread and become plentiful at these two opposite ends of the island, I hope by this free confession and announcement to stand acquitted of all intention to mislead or deceive others into the belief of its being a native. I likewise trust for the experiment's sake to be pardoned this attempt to naturalize so beautiful a plant on the shores of the Solent, by those who, with myself, hold such assistance given to Nature in flinging abroad her productions, a disservice done to Botany and its votaries, and as a general practice, highly reprehensible. The Rev. Hugh Davies, in his 'Welsh Botanology,' which uncouth word stands for the Flora of Anglesey, not of the principality at large, mentions a form of the plant as growing on the sandy south-west coast of that island, which, from his description, I supposed might be E. pitynsa, a species nearly allied to the present, but inhabiting the south of Europe, one of the characters of which is to have, like Davies's plant, the lower stem-leaves reflexed. Mr. Borrer, to whom I mentioned my suspicion, in which I was the more confirmed by Davies's own doubts of its being only E. Paralias, kindly examined the plant in its locality, and satisfied me by a specimen from thence of its being merely a form of the latter.

Euphorbia portlandica. On rocks and cliffs by the sea, as also on the sandy or pebbly beach itself; occasionally, too, in woods and thickets along the shore; very local. Plentiful on the steep chalk banks and cliffs at the upper, or N.E. end of Sandown Bay, the only Isle-of-Wight station known to me, and where it seems to have been first observed by Mr. W. D. Snooke, in his little work, the 'Flora Vectiana,' referred to in a former part of these Notes. Very abundant and luxuriant on the wide, flat beach of Stokes Bay, near Gosport, formed by the recession of the sea, and interesting from the number of rather rare plants it produces, amongst which may be mentioned this Euphorbia, Cochlearia danica, Silene nutans, Linaria repens and Teesdalia nudicaulis. The flowering time of this very pretty, almost shrubby spurge, is very erroneously given in our books, not excepting Babington's Manual, in which so much has been done in the way of correcting these and other mistakes of his predecessors. The Portland Spurge begins to flower early in May, and continues in bloom till August or September. At Torquay I have remarked it growing in the borders of thickets by the side of the Tor Abbey walks, but in this county it shows no tendency to become a wood plant.

——— *Peplus.* Common in waste and cultivated ground; particularly in weedy, ill-kept gardens in autumn all over the county. I have remarked a monstrous form, in which some of the ovaries were converted into a long, horn-shaped excrescence, surmounted by the styles.

——— *exigua.* In waste and cultivated ground, fallows, and especially in corn-fields; most abundantly, both on chalk and sand, over the whole county and island.

†——— *Lathyris.* Here and there in waste and garden ground, amongst potatoes, by road-sides, and along hedges near houses, very rarely in newly cut copses; doubtfully indigenous in any part of the

county, and certainly not so to the Isle of Wight. On Ryde Dover formerly. Seen at Binstead, Cowes, St. Lawrence, and elsewhere in the island, but in no fixed stations. Frequent in cottage gardens, and when once introduced not easily got rid of. Said to drive away moles, and the large, unripe capsules have been sometimes ignorantly pickled for capers, hence the common name of Caper-bush in Hants, which we may further suppose to have been appropriately given it from the saltatory movements the condiment so prepared would be apt to excite in such as partook of it. Certes we may imagine at the least, such pungent sauce to elicit a reply like that of the first lieutenant, on the soup at the captain's table, into which the contents of a whole bottle of cayenne had accidentally been transferred, who, when the necessity for patient endurance which the etiquette of the service imposed, was removed by his superior asking if he did not find the soup a little too highly seasoned, abruptly made answer, "smart eating, certainly, Sir, smart eating!" The Caper Spurge is said to be truly wild in a few localities, as at Ufton, near Reading, springing up in dry, stony thickets for a year or two after they have been cut, and I have myself seen it perfectly naturalized, if not indigenous, on that curious rocky islet, the Steep Holmes, in the Severn. In this county Dr. Macreight gives "woods at Selborne," as a station for E. Lathyris, in his 'Manual of British Botany,' but in a communication with which that gentleman favoured me in reply to an application I made to him for particulars, he expresses an opinion that the species is not indigenous to the station in question.

Mercurialis perennis. In woods, thickets, copses, on hedge-banks and in moist, shady, bushy places; most abundantly in all parts of the county and Isle of Wight. One of the most social of our native vegetables, often covering the surface of the ground in our damp woods to the utter exclusion of all other plants; it is also remarkable as being one of the earliest herbs to appear above ground in the spring, and the latest to die down on the approach of winter. In mild seasons it may be found in flower at the close of February, before its leaves are unfolded,* and numbers of the stems survive and retain their leaves tolerably green into the second year. Both our native species turn partially blue in drying, and perhaps contain indigo, or some analogous principle, which, after vitality is extinguished in the plant, absorbs oxygen, and becomes apparent by precipitation in the vegetable tissue, yet the attempts of a chemist at Glasgow to obtain a permanent colouring matter or dye stuff from this plant have failed of success. Some species of the genus, as M. tomentosa, are devoid of colouring matter. The Miss Sibleys, of Hall Place, West Meon, inform me that cows greedily devour the herbage of M. perennis when they can get at it, without injury to themselves, though reputed extremely poisonous to cattle and the human species. See Gardiner's 'Flora of Forfarshire,' p. 160. The Rev. Hugh Davies has seen this species perfectly monœcious, like the following (Welsh Botan. p. 95).

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* In 1843 I gathered M. perennis in flower in this island as early as the 9th of February. It is always fully in bloom here in March, continuing to flower on into May.

Mercurialis annua. In waste and cultivated places about towns, on banks and along suburban fences, and particularly in kitchen-garden ground. Formerly not very uncommon in the Isle of Wight, but of late years it has become exceedingly scarce here through the progress of building effecting its extirpation.* In Ray's time it grew plentifully on the shore at Ryde, (Syn. edit. Dillen. p. 139, see note below), doubtless on what is now called the Dover, and where it lingered in defiance of the changes that have converted that waste into a part of this populous town, till within a very few years back, having myself gathered it there in tolerable plenty on one spot, but it has now quite disappeared from every part of this neighbourhood. Mr. Wm. W. Saunders noticed it, as he believes, some years ago not unfrequently about the town, and I have certainly gathered it in other places besides the Dover, although it has always seemed to me very uncommon at Ryde, and I believe it is at present all but, if not quite, extinct

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* Although given without an expression or mark of doubt as a genuine native by those authors most inclined to dispute the indigenous origin of many a British plant, I am strongly disposed to believe the annual Mercury more deserving of the asterisk than a large majority of species to which that symbol of doubt has been affixed. In the time of Gerarde and Parkinson it was evidently, from their accounts, much rarer and more local than at present, and would seem chiefly to have grown in Kent and on some parts of the south coast. Such distant localities as Rochester and Romney would hardly have been cited as stations by these old authors, had the species been the abundant weed it has since become in so many parts of the metropolitan district. Ray (Hist. Plant. i. p. 163) makes it rare by implication in his own day, for although he says of it "reperitur in hortis olitoriis, vinctis, aliisque locis humentibus ac umbrosis;" it is evident by the word *vinctis* he is speaking of its usual places of growth, without reference to any country in particular, and it is remarkable that he gives as an English station the shore of the very place from which I am writing; "In maris littore propè *Ryde* Vectis insulæ oppidulum spontè et copiosà provenit." Had he been acquainted with habitats nearer his own part of England, he would surely have mentioned them in preference to, or at least in conjunction with, one so remote as the coast of the Isle of Wight. Besides that it has all the appearance of an introduced species, the very ancient name of French Mercury seems to point at its foreign extraction, although I would by no means insist much on this head apart from the other considerations just urged, knowing how fallacious are inferences deduced from popular names alone. The most of us have heard that so late as the reign of Henry the Eighth this country was chiefly supplied with esculent vegetables from Flanders: is it not likely that the annual Mercury may have migrated from the continent into England when kitchen-gardens first began to be general, spreading with the progress of horticulture from our south-eastern coast, where it would naturally be first established, more and more widely through the land? In further confirmation of my views on this subject, I will now quote the following curious passages from Turner's Herbal, the black-letter edition of Cologne, 1568, the description illustrated by two excellent woodcuts of M. annua, pistillate and staminate. It is to be observed

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that Turner makes no mention of M. perennis under the head of Mercury (Herb. part 2nd, p. 55). After a short account of the plant he thus proceeds: "By thys description it is playn that our forefathers have erred in England which hitherto in the most parte of all England have used another herbe in the stede of the ryghte Mercury. Therfore as many as had leuer ete whete than acornes, let them use no more theyr old Mercury, but thys Mercury (*M. annua*) whych Dioscorides describeth. The ryght Mercury groweth comon in the fields and wynyardes of Germany without any settyng or sowyng. And it beginneth now to be knowen in London, and in Gentle mennis places not far from London. I neuer saw it grow more plentuously in all my lyfe than about Wormes in Germany." What the false Mercury may be which Turner alludes to above is not clear, it can hardly be M. perennis, if all that is said of its poisonous properties be true, since it would seem to have been used instead of M. annua in "sallettes and mouses" (*Gemüse*, Germ.). It was most likely Chenopodium Bonus Henricus, one of the old names for which was English Mercury, a plant much used by our forefathers in lieu of greens or spinage. It is observable that Turner does not apply the name of French Mercury to M. annua, which was probably imposed on it at a later period, when it was better known and more plentiful than when he wrote. I should infer from Turner's words given above, that the Annual Mercury was at first purposely grown as a pot-herb, which those of Gerarde (em. p. 332) seem to confirm, where he says, "French Mercury is sowen in kitchen gardens among pot-herbs. I found it under the dropping of the Bishop's house at Rochester; from whence I brought a plant or two into my garden, since which time I cannot rid my garden from it." It seems to have been more used medicinally than dietetically, and to have soon gone out of use as a pot-herb, being scarcely mentioned as such by Gerarde and Parkinson. I think I have adduced sufficient evidence to show that M. annua was once a much rarer plant in this country than at present, and that the presumption amounts almost to a demonstration of its having been imported originally from the continent as a garden production. I may here remark that Impatiens Noli-me-tangere was regarded as a kind of Mercurialis by these old herbalists, and which Parkinson tells us was found in his time "by an industrious Gentleman and Herbalist Mr. George Bowles, by the shadie wood sides of the mountains and their vallyes in Wales," a fact which, as it is confirmed by botanists of the present day, sufficiently refutes the unreasonable doubt sought to be attached to this widely-spread European plant as a genuine, indisputable native.

here. In a garden in George Street, along with Nicandra physaloides, but sparingly, October 3rd, 1844, the last specimen seen. Field at Gurnet Bay, near Gurnet farm, 1838. At Ventnor; Dr. Martin!!! (Still here and there in garden ground, but less frequent than it was a few years back). Abundant in Northwood Park, amongst potatoes; Miss G. E. Kilderbee!!! Betwixt Godshill and Sandford, 1848; Mr. Albert Hamborough. At Steephill; *Id.*, 1848!!! Far more frequent and abundant in mainland Hants, where it cannot be accounted a rare species. In several parts of Portsea Island, at Frotton, and abundantly on waste lots (formerly garden ground) about half a mile inland from Southsea Castle, at the back of Southsea Common, along with Chenopodium murale, the purple variety of Datura Stramonium (D. Tatula, *L.*), and Solanum nigrum with flowers rather larger than usual; November 5th, 1849. Frequent at Southampton, and profusely in and around Winchester, where it is a vile weed in kitchen-garden ground, choking the soil and spreading about the fences and hedges. I have seen it at Emsworth, Porchester, Wicor farm, near Fareham, and at Andover. Petersfield; Mr. Pamplin!!! Church Lane, Fareham; Mr. W. L. Notcutt: and doubtless in most other parts of the county. Var. β. ambigua (M. ambigua, *L.* fil.): staminate and pistillate flowers in sessile axillary clusters. With the common form, but rarely. A troublesome weed for many years past in the kitchen garden at St. John's, near Ryde, where it may be seen occasionally passing, more or less distinctly, into the usual diœcious and spicate form of inflorescence. As found at Ryde, this variety differs from the usual state of the species in its more ovate, less lanceolate leaves, of a paler green, with less distinct veins, and more remotely serrated, according well in this respect with the figure and description of the younger Linnæus, in the first decade of his 'Plantarum rariorum Horti Upsaliensis,' tab. 8. The flowers stand in small, roundish, axillary clusters of eight or ten together, sometimes consisting entirely of pistillate or staminate blossoms, more usually intermixed, the latter elevated above the former on rather long peduncles. This arrangement is such as we find in Buxus, Euphorbia and other genera of the order (Euphorbiaceæ) naturally diœcious. I found in May, 1839, at Hermit's Tower, Winchester, M. annua exhibiting its usual diœcious character, but with the flowers of both sexes in axillary clusters, sessile, or nearly so, as in the monœcious variety β. ambigua.

Parietaria officinalis. On old walls, churches, ruins, and amongst rubbish; also on hedge-banks, rocks and sea-cliffs; very frequent over the county and Isle of Wight. Amongst the ruins of Quarr Abbey. Walls of Carisbrook Castle, plentifully. Common in most of the churchyards of the island, as those of Brading, Brixton, Carisbrook, Northwood, Newchurch, Freshwater, &c. Plentiful at the base of the chalk cliffs in Scratchell's Bay, and abundant on the down along the edge of the cliffs from thence towards Freshwater Gate at intervals. Profusely on Rosehall Green, Main Bench. Hedge-banks by the road-side between Carisbrook and Buccombe, on the way to Shorwell, in several places. Hedge-banks by Blackbridge, Freshwater, and near the farm (Old Warren House) at Alum Bay. Not less general in mainland Hants. Most profuse and luxuriant on the walls of Porchester Castle, Beaulieu Abbey, Winton and Southampton town walls, and many another venerable relic of feudal or ecclesiastical magnificence,

> "Where the mouldering walls are seen
> Hung with pellitory green."—CLARE.

I am not at present prepared to say which of the two species of Parietaria admitted as British into the Manual, is the commoner in Hants, or whether we possess both, as I am inclined to believe we do. This genus connects Urticaceæ with Euphorbiaceæ through Acalypha, belonging to the latter order, some species of which, as A. virginica, have considerable resemblance to a Parietaria, in aspect as well as structure.

Urtica pilulifera. Under walls, amongst rubbish, and in waste places about towns; very rare, and not seen by myself in Hants. Portsmouth; the Rev. G. E. Smith in New Bot. Guide. It was rather at Gosport that my worthy friend met with this species, now a good many years since; the exact locality he cannot recal, but believes it to have been somewhere on the way from Gosport to Gomer Pond, perhaps at Alverstoke or Privet, but if so, it still eludes my endeavours to rediscover it at all three places. Hayling Island, according to the catalogue of plants in the Hayling Guide, but the wording leaves it uncertain whether the intended station be not at Emsworth, part of which town is in Sussex. The list of Hayling plants in the work just mentioned is meagre enough, but contains no unlikely species calculated to throw suspicion on the author's botanical knowledge, as too often happens in local catalogues, and as the Roman nettle unquestionably occurred at Gosport, it may equally inhabit the adjacent parts of the county. This species is commonly looked upon by recent British botanists as an introduced plant: I am disposed to think it as truly wild on the Suffolk coast, as in the south of Europe, where, although abundant, I have never seen it, except in or about towns, as with us. At Gorleston by Yarmouth it seemed to me as much at home as at Montpellier, though less plentiful, but the progress of building has done much to diminish its frequency in that English station. U. Dodartii I have every reason for believing a mere variety of U. pilulifera, with entire, or partially entire leaves.

Urtica urens. Very common in waste and cultivated places, by road-sides and on dunghills, but less general than the following, and more confined to the neighbourhood of habitations. I remarked it as unusually frequent in west Hants, about Ringwood and Christchurch, last summer.

——— *dioica.* In waste ground, along hedges, in woods, lanes, on weedy banks, and by road-sides; everywhere abundant. The var. β. angustifolia (Wim. and Grab.), with ovate-lanceolate leaves rounded at base, I have remarked in this island occasionally.

Humulus Lupulus. In moist or boggy woods, thickets, hedges, banks of streams and bushy places, a truly indigenous plant, universally and abundantly distributed over the county. As common as brambles in very many parts of the Isle of Wight, particularly in low, damp thickets, which are often impenetrably matted with its interlacing stems, or it may be seen running up the slender trunks of alders and sallows in our boggy copses, in such abundance as to resemble natural hop-gardens, and in these situations has a very picturesque effect. Never grown in this island for its strobiles, which in the wild plant yield excellent hops, and are sometimes gathered by the country people in lieu of the more expensive produce of Kent and Surrey. The hop is cultivated for commercial purposes in a very small part only of Hants, in the north-eastern portion of the county, along the Surrey border, as Alton, Selborne, &c., yet is equally plentiful where its culture is unknown; I have never failed seeing it in every district I have yet visited. Mr. H. C. Watson, in his valuable work the 'Cybele Britannica,' where, on the subject of the indigenous origin of the plants composing our flora, he has, I cannot help thinking, suffered his own independent and inquiring mind to be somewhat biassed by the antiquated and crude speculations of others, puts the following string of queries under the head of Humulus Lupulus (Cyb. Brit. ii. p. 372). "Has the hop been introduced into Britain by human agency, or is it an aboriginal native? If native, how much of its present area, how many of its localities, should be deemed natural? and how much of that area, how many of those localities, may be considered artificial? Who can undertake to answer these questions with certainty?" The two middle or intermediate queries are soon disposed of as transcending human ability to resolve. The challenge contained in the last question I will venture to accept, and undertake to answer the inquiry with as much confidence and just as much (but not more) certainty, as if the spontaneous origin of the oak were the subject of debate. Propositions like these are not mathematical problems, capable of rigid, undeniable demonstration; the weight of probability must here be allowed to decide where proof of any more exact kind is impossible. I need not recapitulate what I have said on the subject of the Hop in a former part of these Notes (Phytol. iii. p. 382), to which I beg to refer the reader, I will only add a few observations, and cite a few authorities in support of the opinion there expressed. It would be wasting time and trouble to be at the pains of refuting the puerile and inconclusive objection against the indigenous origin of the Hop in Britain by such as come armed with the traditionary distich

"Turkeys, carp, hops, pickerel and beer
Came into England all in one year."

First, because like the cherries of Lucullus, it was unquestionably the improved and cultivated produce of the hop-gardens of Flanders that is to be understood, and not the wild bines or the burrs, which might have been had from many a hedge and thicket, as I shall show anon; secondly, because there is a suspicious appearance of poetic licence, or contempt for plain, matter-of-fact historical truth, about the gastronomic bard, when he enumerates beer as one of the good things that flowed in upon us during that memorable epoch, it being well known that ale or beer was the national beverage long before hops were employed in its fabrication. Turner, who published his Herbal in 1568, in his rather long account of "Hoppes," never once alludes to them as an ingredient in malt liquors, but speaks only of their virtues from the writings of others, nor does he drop a word that could lead to the conclusion that they were cultivated in England at that period, yet he says, "They grow also wylde in many places both of England and of Germany," (Herb. part 2nd, p. 43, Cologne edit. black letter). Gerarde and Parkinson both speak of the wild hop in England, but as they refer also to the plant as cultivated for the brewer, I suppose their testimony will be objected to on the ground that the hop had become wild from the gardens. Neither in the Synopsis, nor in his opus magnum, the 'Historia Plantarum,' does Ray intimate the slightest suspicion of hops not being indigenous to this country, and he was one by no means hasty in admitting dubious species to the rights of natives. Whence, then, the disposition of some moderns to regard the hop as a naturalized foreigner with us? I hope on some better pretext than the mere follow-my-leader principle, because Sir J. E. Smith says in 'English Flora' (vol. iv. p. 241), "I have sometimes suspected Hops not to be indigenous, which was also the opinion of Lightfoot with regard to Scotland." We are not bound, nor do I think we ought to attach importance to any man's mere suspicions, unless he condescends to show cause for entertaining them. That the hop may not be indigenous to Scotland I think highly probable, for as I have before observed, many plants fall far short in the British Isles of the latitude they attain on the continent, and the hop *may* be one of these. The striking difference observable in the variety and nature of the species composing the floras of Hants and Forfar, for example,* is much greater than is due to mere diminution of the mean annual or summer temperatures, or even to the higher latitude of the Scottish county. The true cause of the rapid failure of so large a number of south of England plants before reaching the Scottish parallels, is to be sought in the greater humidity and cloudiness of the climate, and comparative deficiency of direct solar light, so essential to the spontaneous growth of plants, although in general but little affecting their health and luxuriance under cultivation. An atmosphere often at the point of aqueous saturation, deposits a portion of its moisture when in that condition upon trifling depressions of temperature, and the vapour, now rendered visible, by impairing the transparency of the air, intercepts, even in the absence of clouds, much of the sun's light and heat, which in a clearer and drier sky would exert its direct influence on vegetation. If the heat of our summer be not very much above that of the same season in the north, it commences earlier, and is protracted into an autumn of longer duration, dryness and serenity, better able to ripen the vegetable tissues, and bring the seeds of plants to maturity. It is from our proximity to the continent, and the greater breadth of the mainland of England along its southern coast than elsewhere, that our atmosphere is less loaded with clouds and vapour than is that over the narrow and deeply indented promontory of North Britain, environed by a wide expanse of water on three sides, without any adjacent land surface to maintain heat by terrestrial radiation, or to arrest the deposition of moisture from the Atlantic, much of which is precipitated, before it can reach Hampshire, upon the peninsular counties of Cornwall and Devon. Hence the amount of direct solar radiation, so active an agent in developing a varied and vigorous vegetation, is oftener and more continuously exerted here than in the north, proving more than equivalent in energy to the power of a diffuse light protracted through days considerably exceeding our own in length at the season in question. These conditions of atmospheric dryness and unimpeded solar action, characterize the countries of continental Europe in a still greater degree, and hold good into latitudes higher than those of any part of Britain, enabling plants that are indifferent to the increased rigour of the winters, to advance far to the northward of the parallels they can attain in our insular climate, where their progress towards the poles is much sooner arrested by the failure of the conditions above mentioned. To these causes, more than to the very moderate increased heat of the summers, must be attributed the difference we find in the amount of species betwixt the floras of Edinburgh and Copenhagen; places having almost exactly the same latitude,* but enjoying, the one an ultra-insular, cloudy and equable climate, the other an all but continental, somewhat extreme climate, the greater dryness and sunniness of which gives to the Danish metropolitan flora a much more varied aspect. The same comparative poverty of species, though much less evident, because latitude is not concerned in producing the change, is manifested in the flora of Wales and the west of England over that of the eastern counties, and on crossing St. George's Channel, the total absence or great rarity of plants of common or abundant occurrence on the English side, is a striking feature in the flora of the sister island. In each case the cause is the same, diminished solar influence from impeded radiation and increased humidity acting as a bar to the proper hardening of the vegetable fibres. We must all of us have remarked that those localities are not the richest in species where the vegetation is most luxuriant; indeed, that the most unpromising spots to the eye, barren, sandy fields and wastes, often yield an ampler harvest than the merry green wood conceals beneath its leafy bowers.

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* I select Forfarshire as being the Scottish county of which, through the labours of Don and Gardiner, we possess the fullest published flora.

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* The Edinburgh Catalogue of Plants gives a most unfaithful picture of the real or indigenous, as well as the derived or naturalized flora of that district, embracing, as it does, a multitude of imperfectly established and even planted species, as Staphylea, &c.

So Humboldt, I think, observes that the damp shaded forests of the Upper Amazons and Orinoco rivers, where frequent rains and a clouded sky maintain a majestic arboreous vegetation, are far poorer in the number of species they produce than the open burnt-up *campos* of Brazil, covered with an infinite variety of low shrubby plants, with a host of herbaceous ones scarcely less numerous. The astonishing number of plants that crowd the arid shores of the Mediterranean, where the great hygrometric dryness forbids the growth of the major part of our deciduous thin-leaved forest trees, and the landscape is scantily clothed with triste thickets of evergreen and cork oaks (Quercus Ilex and Q. Suber), wild olives (Olea sylvestris), and pines (Pinus pinea and P. halepensis), is perhaps not much inferior to the amount of species on an equal area between the tropics, though differing in kind, and owes its existence to the uninterrupted action of solar radiation through the long dry summer of that inland basin. Experience fully proves that a wet and consequently cloudy climate, however mild and agreeable, sustains a flora distinguished usually by great luxuriance, but by as remarkable a paucity of species, which, however, make some amends for their fewness by their beauty or peculiarity. New Zealand, Ireland and southern Patagonia furnish striking illustrations of this fact, in the comparative poverty of their ultra-oceanic but handsome and peculiar phanerogamic floras. Mr. Watson found northern (British) forms constituting a large proportion of the Azorian vegetation, in a climate warm enough to ripen the orange, but too cloudy and humid for the great mass of Portuguese and Spanish plants, requiring a larger share of direct solar light to flourish spontaneously.* Enough has been said to show why so many species common in the south and south-east of England fail to reach the northern counties or Scotland, and even become rare or extinct in the west of England and Ireland on the same parallel; and that, therefore, because a plant does not evince itself indubitably wild in the northern, western and even midland parts of Britain, we cannot safely predicate the same of it in the southern and eastern counties, but must be guided by what we see of its condition there in settling the question of spontaneity, without allowing our opinion to

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* The climate of this part of England along the south coast combines the advantages of an insular and continental position. In summer we enjoy the warmth radiated from the adjacent continent, and from the broad expanse of mainland to the north of us, which ensures us considerable hygrometric dryness, and more sunshine than falls to the lot of the northern counties, where the land narrows betwixt wider waters, and losing the advantages of terrestrial radiation, becomes more completely oceanic. In winter, on the other hand, our southerly position and the warm vapours from the Channel generate a tolerably mild temperature, and the great prevalence of south-westerly winds renders that season more rainy than frosty; but except on and near the coast, the mean heat of winter in Hants is little, if at all, higher than in the north of England or Scotland, although that season is of shorter duration and preceded by a longer and drier autumn, and followed by an earlier, though often equally cold spring, the east winds at that period blowing almost as constantly and keenly as on any part of the coast west of the Foreland Point, and constituting here in the months of March, April, and too often in May, the "blackthorn winter," our truest

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season of that name, as till then we have seldom any cold worth speaking of, and snow has been for several years of very rare occurrence. But the cold winds of spring are not so injurious to vegetation here as farther north, because not accompanied by so much moisture, and because the longer and warmer summer ripens the wood of tender trees and shrubs, enabling them to resist their ungenial influence. Hence we see, in the Isle of Wight and along the opposite coast of Hants, the myrtle and the fig luxuriant as standards in the gardens even of the cottagers, the former ripening its berries abundantly, and the latter growing to trees of great stature and girth, and producing most abundant crops of large and luscious fruit every season. Noble fig trees, as large as most I have seen in Italy, and bearing figs fully equal in size, but perhaps somewhat less saccharine in general, to those grown abroad, may be seen about Portsmouth and elsewhere along the coast, as well as in this island. St. John's garden, near Ryde, is full of old standard fig trees, most prolific bearers, that yield a good return to the proprietor yearly at the fig season (August, September) for the trouble of gathering, as this tree needs no pruning or attention, and indeed thrives best when most neglected. I have never known the fig suffer from our severest winters; even in the extraordinary one of 1838-9 the trees here escaped without the slightest injury, but at any considerable distance inland the ends of the branches are liable to suffer from the spring frosts, and the protection of a wall becomes advisable to ensure a crop of fruit. The varieties of the fig grown at Ryde are the brown Ischia, purple Ischia, white Genoa, and a large, green, late fig, the name of which I cannot learn, and which often fails to ripen in this climate. Figs of three quarters of a pound weight have been gathered at St. John's, and fruit weighing half a pound is not uncommon, but the average is under this last amount. Although abundantly cultivated all over the county, in every garden and against almost every farm-house and cottage, the vine succeeds but indifferently in the Isle of Wight and along the coast line in ordinary years, as, although clusters of large size are frequently and copiously produced, they do not arrive at proper maturity before the damp weather of autumn sets in and spoils the grapes. More inland, however, the vine comes oftener to maturity, and even in this island well-ripened and heavy crops of grapes are procured at intervals of about three or four years at furthest. This last autumn, I remarked the vines in most places along the south coast from Arundel westward to Christchurch, loaded with fine well-grown clusters of black and white grapes, which, although of full size and well coloured, in few instances had their proper flavour. The vine succeeds better and more constantly in our dry eastern counties, at some distance from the sea, as in Kent, Cambridgeshire and the western parts of Suffolk.

be warped by prior and partial observations (Phytol. iii. 381). If there is any principle on which the exclusionists take their stand, it seems to be that of cultivation: they appear to hold it as almost an established axiom, that no plant in general and extensive cultivation for economic or ornamental uses can be free from well-founded suspicion of foreign descent,—such at least is the only conclusion I am able to arrive at in attempting to discover the *reasons* for so much doubt and demur on the side of our British authorities, when the indigenous origin of our plants comes to be mooted. I much wish that some one or more of these doubting gentlemen would step forward and state their objections to the native origin of the Hop and the other disputed vegetables, on some broad intelligible basis, conducting the argument in the same philosophic and logical way as in the controversy between Daines Barrington and Dr. Ducarel on the right of the chestnut (*Castanea vesca*) to be held a native of England. The fact is, the Hop is more properly a plant of northern than of southern countries, the "vitis septentrionalium," as it has been called by ancient authors, widely dispersed over the greater part of the temperate zone, being abundantly distributed in Europe, the north of Asia and America, and admitting of successful cultivation only in cool and even boreal latitudes.

†*Ulmus campestris*, Sm. &c. (non Linn.) Small-leaved Elm. In woods? and hedges; rare? Not found in the Isle of Wight. In various places about Lymington, and between Lymington and Boldre, also near Christchurch, both which places I find are given by Goodyer, in Gerarde (em. p. 1478), as the "narrow-leafed Elme," with a very fair figure, and the following account: "This tree is like the other (the common Elme, *U. suberosa*), but much lesser and lower," &c. &c. "This kinde I have seen growing but once, and that in the hedges by the highway, as I rode betweene Christchurch and Limmington in the New Forrest, in Hampshire, about the middle of September, 1624." Goodyer, like myself, was a native of Hampshire, and botanized much in the county: his testimony confirms my belief that this elm, which is the true U. campestris of Smith's 'English Flora' and the common elm of Norfolk, is a scarce species with us. I believe it to be a mere variety of U. suberosa, with no more appearance of being indigenous than that has.

†——— *suberosa*. In thickets, groves, borders of woods and fields, and especially in hedgerows; profusely abundant throughout the entire county and Isle of Wight; by far the most common hedgerow timber tree with us, not excepting the oak itself; yet it is, I think, very questionable if it be really indigenous. Never seen on the abo-

riginal forest ground, and seldom in woods or copses, excepting around their borders or a short distance within them, where it has crept from the enclosing hedge-fence, by means of the stools or suckers which this species so abundantly sends up, and which are the great instruments of its propagation, the seed being seldom perfected here, though plentifully enough produced. True it is, that it may sometimes be seen forming woods by itself, but such woods are for the most part narrow slips, or small angular patches of copse between hedgerows, called here *rews* (quasi rows), the elms in which were either originally planted, or have arisen from the stools of the trees standing in the hedges without. Such is the origin apparently of the Elm Close Copse, by St. John's, Ryde; Woods near Park farm, Nettlestone; Breaches Copse, behind Whitecliff Bay; Bush Rew, by Mottiston, betwixt the church and the sea; all of which are mainly composed of U. suberosa. Abundant along the crest of the rocky precipice overhanging Cowpit Cliff and Hatchet Close woods, where it has more of an indigenous aspect than I have anywhere seen it besides. The samara in all the specimens I have examined is perfectly smooth on the margin, or destitute of cilia. The Dutch elm (*U. major* of Smith) sometimes seen in parks and pleasure-grounds, seems to me a variety of U. suberosa, with larger leaves. The bark in old trees of U. suberosa is very deeply chapped or rifted, and in young ones the branches are winged with a corky excrescence, as in the field Maple (*Acer campestre*). A tree sometimes of enormous magnitude, of which in this island—not remarkable for the size of the timber it grows—many very fine specimens may be seen at Quarr, Nettlestone, &c.

Ulmus glabra. In woods, hedges and copses, occasionally; truly wild, but scarcely more, probably, than a variety of the following.

Var. α. Leaves lanceolate, smoothish and shining above, quite glabrous beneath. A large tree near the entrance of Centurion's Copse, by Brading.

Var. β. Branches upright; leaves ovato-lanceolate, evenly downy beneath, pubescent but not rough above, and somewhat shining. In Bloodstone Copse, near Ashey farm; plentiful.

Var. γ. (latifolia, Bab. Man, ?). Leaves large, remarkably smooth and shining; branches drooping. In the farmyard of Apse, near Shanklin, a noble tree, but whether wild or planted I know not. The fruit smaller than in U. montana, nearly circular and cloven almost to the seed. This is, I have no doubt, the U. glabra γ. latifolia of Lindley and Babington, which I have only seen with us in the above locality.

In α. the clusters of fruit are as dense, and the samara nearly as large, as in U. montana, of which they have the suborbicular form, and are, as in that, cloven to the seed. This was pronounced by the late Mr. E. Forster to belong to U. glabra, as he understood that species.

In β. the fruit is smaller and obovate, smooth and deeply cloven, as laid down for U. glabra; but the leaves by their greater breadth, and in configuration, approach nearer than in α. to U. montana, of which I am convinced both these varieties are but forms, with smaller, narrower and less scabrous leaves.

Ulmus montana (U. campestris, Linn., non Sm. et auct. Brit.). In woods, coppices and hedges throughout the county, but not very universally or abundantly, although truly indigenous. In several parts of the Isle of Wight, but not general. In Quarr Copse, Binstead, not uncommon, and where there are some tolerably fine specimens. With Tilia parvifolia in a small wood betwixt Yarmouth and Tapnel. Common in Hatchet Close and Cowpit Cliff woods, near Shanklin. Rocky woods at Eastend, Luccombe. In Westridge Copse, near Shorwell, and in other parts of the island occasionally, mostly here and on the main in upland situations, and from being usually cut with the brush, not often to be seen of timber-like dimensions. Common in the high woods about Petersfield, at Stoner Hill, Bordean, Froxfield, &c. Woods at Selborne. About Hambledon, and betwixt Clanfield and East Meon. Hedges along the Winchester road, near Whitway or Whiteway, a hamlet just outside of Highclere Park, and where, about a mile or less south of the village on the same road, I find a handsome tree, in the hedges, answering in some degree to the characters of U. glabra, except that the large, oblong, cuspidate leaves are considerably rough on the upper side; the branches are quite smooth and drooping, but the fruit I have not seen. Whether these trees are wild or planted I am unable to say, but I have no reason to suppose them not indigenous in that locality where U. montana is frequent and certainly native.

An inspection of the Linnean herbarium and careful comparison of the descriptions and synonyms of Swedish authors, had long led me to conclude, with Mr. Borrer, that our U. montana is the true U. campestris of Linneus, and assuredly not U. suberosa or its variety, with smaller leaves, to which the name campestris was given by Smith, and adopted by subsequent British authors. The very brief character given in the 'Flora Suecica,' the best authority for Linnean species natives of Sweden, is insufficient to settle the point; nor does that of the 'Species Plantarum' assist us more, as being only a transcript from the former work; whilst the reference in the latter to the 'Hortus Cliffortianus,' together with the specimen in the Linnean herbarium, incontestably show that our U. montana in its typical form (the U. folio latissimo scabro of Tournefort) was what Linneus meant by his U. campestris, under which, however, he included as varieties our U. glabra and another, which may be intended for U. suberosa or some of its forms. It being evident from the 'Hortus Cliffortianus' that Linneus considered our Wych Elm (*U. montana*) as the typical state or primary form, *α.*, of his U. campestris, we must so consider it; for although Linneus seems to have thought all the remaining European elms, however different in aspect (varietates longe plures hujus speciei distinctas), as forming but one species, his having applied the name campestris primarily to a well-recognized and distinct elm, it ought not to be discarded, much less transferred, to another species (U. campestris, *Sm.*) not indigenous to Sweden. If this last must still be held distinct from U. suberosa, some other name should be substituted for its present one, and that of campestris restored to our Wych elm, *α.* being the true species so denominated by Linneus, and understood as such by Swedish botanists. The figure of U. campestris, *L.*, in Fl. Danica, tab. 632, bad as it is, unquestionably represents our U. montana,* which, with U. effusa, distinguished by its stalked flowers and ciliated samara, are the only species of elm found wild in the north of Europe. Wahlenberg cites the figure and synonym of U. montana in E. B. for U. effusa, in his 'Flora Suecica,' although the fruit in the former is not ciliated. It appears from the 'Manual' that the samara of U. suberosa is occasionally ciliated: may not this character be inconstant, and, if so, may not U. montana and U. effusa be varieties of a single species? No dependance can be placed in this genus on the number of the stamens, which varies from four or five to six and eight, according to the divisions of the perianth. Thus in U. suberosa I find four or five (usually but four); in U. glabra five, with an hexandrous flower intermixed occasionally; in U. montana, five to seven or eight. I have been at much pains to find constant characters between our Hampshire elms, and I am glad to see that Mr. Babington coincides in the opinion I arrived at some years ago, that all our British species of this genus may without risk of error be reduced to two, as shown above—namely, U. suberosa and U. montana (U. campestris, *L.*)—the former with all its varieties marked by a disposition to emit suckers or stools from the root, and even from the trunk, to a considerable height from the ground, and by which it is mainly propagated, the seed, perhaps from this cause, seldom coming to perfection, but dropping whilst yet green, the bark in all the forms deeply cracked or rifted, and the younger branches often winged or corky. In U. montana and its varieties, U. glabra &c., the bark is smoother, and the tree produces few or no suckers, being increased by the fruit, which ripens perfectly. The late Mr. Knight, of Downton Castle, as I learn from Mr. Bentham, raised several of the supposed species of elm from the seed of one kind alone. An elm with erect or ascending branches, and fastigiate growth like a black poplar, very small, narrow, firm, subpersistent and shining leaves, grows about St. John's and at Brooklands, near Ryde, which I take to be the U. stricta (Cornish Elm) of Lindley, but is not indigenous, and I hold it to be a form of U. suberosa allied to Smith's campestris.

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* The much superior figure of U. campestris in Svensk Botanik. i. t. 13, and which may well be accounted authority, is equally our U. montana, as is likewise the excellent plate of U. campestris in Guimpel and Hayne Abbild. der Deutsch. Holtzartin, i. t. 27.

A remarkable fact in the natural history of the elm is the occasional partial or total suppression of the flowers at their season for appearing. In the spring of 1839, scarcely a tree could be found in bloom, either of U. suberosa or montana, in this island and elsewhere in England,* although the year before the branches were loaded with flowers, which were again tolerably profuse in 1840. The largest Wych Elm in Quarr Copse, standing amongst many free flowerers of its own species, although perfectly vigorous, has never shown any disposition to blossom since I have known it. The Wych Elm, like the Sycamore maple (*Acer Pseudo-platanus*), is far from attaining the gigantic proportions in this county it reaches more to the north, and in the west of England, the climate of the south-east being rather too warm and dry for both these trees to reach their highest perfection, but U. suberosa is in Hampshire and other southern counties the successful rival of the oak in girth, and commonly far surpasses it in altitude; the wood, though commonly made subservient to the coarser purposes of the wheelwright and undertaker, shows a good grain when polished and worked up into furniture. The White Elm of North America (*U. americana*) comes very near our Wych Elm in character, attains a greater bulk, and exceeds it in the graceful contour of its fine recurved branches, being in fact one of the most magnificent trees of that continent, and deserving much more attention from our arboriculturists than it has hitherto received. It is the pride of the beautiful village towns of western Massachusetts and Connecticut, such as Newhaven, Springfield and Northampton, above whose rural streets and gay tenements its huge massive trunks rise like magnificent columns, supporting a canopy of deepest shade and verdure. It would doubtless flourish as well with us in England as our U. suberosa in America, where, at Boston, are many fine specimens in and around that most English looking, thinking and speaking city.

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* As about London and in Essex, as I learned from the late Mr. E. Forster, and probably all over the kingdom.

The following list of Hampshire Willows must doubtless seem a very meagre one to those who have directed their attention to this, the most difficult and perplexing genus perhaps in the whole range of botany, not excepting the Brambles and their graceful first-cousins the Roses. Some years ago I set to work *con amore* to collect and describe such of the willows of this island as looked *really* indigenous, eschewing all acquaintance with the pliant denizens of osier grounds,* which custom has strangely permitted to pass as habitats for the species of this genus, with about as much propriety as if the garden or shrubbery were held to be genuine stations from whence to draw the materials for a British flora. Anticipating great trouble and little satisfaction in the execution of my task, I was not sorry to find Nature herself in a mood to lighten my labours and abridge their duration by giving me but scanty materials to work upon, yet somewhat chagrined at her parsimony in withholding from the Vectian flora the more beautiful of the willow tribe, leaving us little else than the comparatively worthless and uninteresting family of sallows to call truly our own. For the mainland section of the county I have no additional species to record on personal observation, though many more, real or fictitious, must be supposed to exist in so well watered and well wooded a region as Hampshire. This deficiency I shall endeavour to make up in future, which before my attention was turned to the botany of the larger section of the county I had no means of effecting. I am convinced that hybridity is at the root of a vast deal of the difficulty and obscurity that envelope the study of the willows. The peculiarly exposed position of the ovaries in the pistillate catkins, the copiousness of the pollen in the staminate ones, and the facility with which the fertilizing globules are conveyed by bees from the latter to the former, or wafted thither by the wind, are strong arguments in favour of this hypothesis. In the subjoined list the range, frequency and localities of the species are mostly omitted, to avoid giving erroneous information where my knowledge on these points is as defective as that regarding the plants themselves.

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* The term "withy bed" sometimes made use of by me is not always synonymous with "osier bed," "willow plot," "willow ground," implying a piece of land *planted* with osiers for the basket-makers, but simply a boggy tract covered with willows (usually of the sallow tribe) of spontaneous growth, of which we have many in the Isle of Wight, occupying the little valleys or hollows between the hills, and filled with such truly native kinds as S. caprea, aquatica, aurita, &c.

The beautiful and fragrant *S. pentandra,* mostly confined to the north of England and Scotland, may nevertheless be found in Hants, as Mr. Watson is disposed to hold it indigenous to Surrey, and perhaps to Sussex and Devon.

Salix decipiens. Near Fontley Iron mills (Fareham); Mr. W. L. Notcutt!

——*fragilis.* Wet meadows, banks of streams, &c.; I believe frequent in the Isle of Wight. Some very large trees by a pool in a pasture field near Nunwell answered to the description of S. Russelliana, but of this, having seen only staminate plants, I am not well assured. Is it really distinct from S. fragilis?

—— *alba.* Very common in a planted state along ditches in moist meadows, &c.; less so in its natural localities of wet woods, pastures and sides of streams. A noble tree in many parts of the county and island. γ. vitellina, S. vitellina, *Auct. Anglican.* Wet thickets, &c., occasionally. Westridge, Ashey, Yaverland. Fontley (near Fareham); Mr. W. L. Notcutt.

—— *triandra.* In wet thickets, by stream-sides, &c.; apparently native and not unfrequent in several parts of the island; more frequently still in a planted condition. The staminate plant is far more common here than the pistillate.

—— *undulata.* Titchfield Bridge; Mr. W. L. Notcutt!

S. Helix and *purpurea* most likely exist in the county, but I have not seen any willow belonging to this section (purpureæ) wild in the Isle of Wight. Mr. Notcutt in his list of plants of the neighbourhood of Fareham (Phytol. ii. 212) gives S. rubra as growing at Titchfield Common.

—— *viminalis.* In low swampy woods and thickets; not, I think, unfrequent in its wild state, though more usually seen in cultivation.

—— *Smithiana.* Wet woods; rare? In a wet bushy part of the wood nearly opposite the entrance gate to Roughborough farm, betwixt Ryde and Brading; Dr. Bell Salter!!! By the bridge that crosses the road near Shanklin Church, on the left hand side; *Id.* My only specimens of this are flowering ones of both sexes; the leaves I have not yet seen. I adopt this species as a native on Dr. Salter's authority, who has paid some attention to the willows in times past, and speaks with confidence on the correctness of the one before us.

Salix acuminata. In damp hedges and thickets, &c.; I believe not very uncommon in this island In Northwood Park; Dr. Salter and Miss G. E. Kilderbee. In a low wet meadow nearly opposite Redhill farm, Appuldurcombe, 1843. I have only seen the pistillate plant of this species here as yet. An apparently well marked willow. Between the tunnel and Fontley; Mr. W. L. Notcutt.

—— *cinerea.* Very frequent, at least its now constituted var. β. aquatica, in wet woods, thickets, hedges, and other damp situations. About Ryde, by a little pond near Westridge farm, &c. Titchfield Common; Mr. W. L. Notcutt.

—— *aurita.* In wet woods, thickets and bogs; in various parts of the Isle of Wight, most abundantly. Plentiful in New Copse, between Ryde and Wootton Bridge. Abundant on the Wilderness; Undercliff, not uncommon. Between the tunnel and Fontley; Mr. W. L. Notcutt. As Sir Wm. Hooker remarks, "One of the least equivocal species, although its leaves vary in length and roundness."

—— *capræa.* In woods, hedges, thickets and bushy pastures, &c., everywhere; the most abundant of all our sallows.

Dr. Salter found some years ago what he considers S. Forsteriana, in Northwood Park, W. Cowes. As this appears to be quite a northern species, and only a single tree was detected, it was most probably introduced by some accident into the plantations there, in which willows of several kinds have been propagated.

—— *laurina.* Woods, &c. By a little pool close to Newtown, on the right of the road from Shalfleet, between the town-hall and Fretlands farm, pointed out to me as this species by Mr. Borrer, a few years ago.

—— *fusca.* In sandy, heathy, or moory ground, both moist and dry, in various parts of the island. Abundant along the road-side and heathy ground adjoining it on the northern skirt of Parkhurst Forest. Var. δ. ascendens, S. parvifolia, *Sm.*, E. B. t. 1961. Moist thicket near Ryde, towards Newport. Other forms of this variable little shrub doubtless occur here, but I am not yet prepared to state them.

†*Populus alba*. In damp woods, hedges, moist meadows, and on the banks of rivers in various parts of the county and Isle of Wight, but in most cases I find myself unable to distinguish it with certainty from the following, of which I am strongly disposed to regard it as a cultivated variety, being, indeed, unable to cite a single station for this tree in its most characteristic and best marked form, where it has an undeniably wild appearance.

——— *canescens*. In similar places with the last, also on hilly, heathy, and dry situations, as commons, &c.; not very frequent, but perhaps truly indigenous to the county. Very common about Pagham farm in hedges, and in a small wet wood near the same, plentifully. In Barton or Bucket's Copse, and in the wet hollow or valley just outside of it, betwixt that wood and Osborne House, are some large and old, as well as many young trees, apparently indigenous. Hedges about Great Park farm, two miles W. of Newport, a rather dubious station; more wild to appearance in a lane leading down to the Wilderness from the high road between Newport and Niton, a little beyond the Star Inn, but sparingly. I have noticed it also near the northern side of Briddlesford Heath, in copses, as well as in several other places in the island, but where it would be scarcely possible to pronounce whether native or introduced. Noble trees of this species grow in a field hedge near Landguard farm, by Shanklin, but pretty evidently, I think, planted, as this and P. alba certainly often are with us on newly made hedge-banks and along fences. There is a magnificent tree of the gray poplar a few miles south of Newport, near a farm, but the name has escaped my memory. Hedges in Hayling Island. About King's Worthy, near Winchester. In Durley Wood, near Bishop's Waltham, by the millstream, and splendid specimens around the great pond at New Alresford, of vast size and height, but I am not certain that the trees (which some might call P. alba) are truly wild in either place. These two species, if they be really distinct, are given in all our leading floras, both local and general, as if unquestionably indigenous, at least to England. Neither Smith, Hooker or Babington hint a suspicion to the contrary. Watson says of the Abele, "P. alba is clearly indigenous to the southern provinces of England" (Cyb. Brit. ii. p. 383). Ray (Hist. Plant. and Synopsis), Gerarde and Parkinson* cast no doubt on its nativity, but sgeak of the Abele as somewhat rarer in their time than our other species; it is plain, however, from their figures of each, that our gray and white poplar were well known and even discriminated by those old herbalists. Turner, whose Herbal was published in 1568, has these words, "As touching the whyte Aspe, I remember not that I ever saw it in any place of England. If it be found in England, it may be called a whyte Asp or a whyte Popler, because the underside of the lefe is as white as any paper," (Herb. black letter edit. Cologne, 1568, part 2, p. 99). From this we may gather that P. alba and canescens must at least have been very rare when Turner wrote, which, though not conclusive on the question, makes in some measure against the aboriginality of these trees in Britain, for Turner was a very careful observer of our native plants, and seems to have travelled much over his own country as well as abroad. I do not question the opinion of those botanists who receive as indigenous the white and gray poplars, because my own doubts are but slight, and my experience probably less than theirs; but as far as my opportunities have gone, I could never perfectly satisfy myself that these trees, especially the Abele, were unequivocally wild in any station in which I have yet seen them in Hants or elsewhere in Britain. It has never happened to me to see either these or the black poplar occupying the recesses of our marshy woods, or fringing the banks of a woodland or forest stream, at great distances from the cultivated enclosed country, accompanying the aspen (*P. tremula*) into its sylvan wildernesses. On the contrary, I seldom see the Abele but along the streams and ditches intersecting water-meadows, the margins of ponds, and in hedgerows contiguous to houses, whilst the gray poplar wanders into wet thickets, copses and hedges, keeping about the borders chiefly of small woods, and open, damp, or heathy pastures, but I cannot call to mind having met with either this or the Abele on any of our forest bogs or streams, where it might be supposed likely to grow if they were really natives to the soil. Perhaps some who read this can point out such unexceptionable stations for one or both of these species. Again, P. alba and canescens are very commonly planted in all the places I have described; their roots creep to an amazing distance, and throw up suckers in every direction from the parent trees, and in

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* "The smaller leaved white Poplar tree" of Parkinson (Theat. Bot. p. 1410, fig. 2) accords with my idea of P. canescens, as does his fig. 1, same page, "The white

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Poplar tree," with my conception of the true Abele in its most characteristic *cultivated* form.

this way convert a low meadow or pasture into a poplar grove. That such is the origin of many of our gray and white poplars in this island I cannot doubt; but as the trees would have the same tendency to increase by suckers from the widely-creeping roots, whether aboriginal or not, this mode of propagation affords no argument one way or the other, excepting so far as it readily accounts for the spreading of the species in spots where it has been certainly introduced. With regard to P. nigra, I confess to doubts somewhat more decided; no station in which I have ever seen the black poplar appeared to my eyes above suspicion.

The question now comes to be considered, are P. alba and P. canescens distinct, or are they varieties of one and the same species? My own opinion inclines strongly to the belief of their being identical, and that the former is but a state of the latter originating from cultivation or quality of soil inducing a greater development in the leaves; that they are in fact analogous to Tilia europæa and T. parvifolia, which are pretty generally admitted to differ only in the size of their leaves and a few minor points of no specific importance. Hence both these poplars may grow equally wild, but the Abele will oftener be seen in suspicious stations than the gray aspen, and this accords with observation. What lends countenance to the opinion just expressed is, that I find people not always agreed as to what is P. alba or what P. canescens, and in fact I am sometimes at a loss how to name certain individuals of these species, so nearly intermediate betwixt both do they present themselves occasionally. By P. alba or Abele I understand a great tree very common in plantations about houses, or in water-meadows, having large triangular or trowel-shaped leaves, *all* deeply and conspicuously angular, toothed and lobed, the under surface snow-white; by P. canescens a tree sometimes of equal height and bulk with the Abele, but with usually smaller leaves, for the most part of a roundish rather than triangular figure, much less deeply angular, and mostly obscurely lobed, excepting those on the youngest trees or the suckers, which are hardly distinguishable from the leaves of the Abele in size or shape, and pretty clearly prove how much an excess of moisture or nourishment has to do with determining these differences in the foliage. The leaves, indeed, of P. canescens are extremely variable in form on the same tree, and in general approach those of the common aspen (*P. tremula*) in outline, that is, they are often rounded and but slightly pointed at the apex, and instead of being angular and lobed are merely sinuate, or sinuate-dentate. Underneath, the leaves of P. canescens are as white sometimes as in P. alba, in general they are less hoary, excepting, as we have just seen, in the suckers or very young seedlings, they are even sometimes smooth and glabrous, as above, or hoary in patches, as if with mildew. Such a glabrous form, of which I find a moderately large but perfectly barren tree in a heathy pasture near Pagham farm, in this island, I suppose may be the P. canescens, var. β. *intermedia* of Mérat (Nouv. Fl. des Env. de Paris, p. 400), and which he thought, not improbably, might be a hybrid of this species with P. tremula,* but like myself, the fructification was unknown to him. Lejeune (Fl. de Spa, p. 260) thinks it more allied to P. tremula than to P. canescens, and although believing it to be a variety of the aspen, makes it a species (P. intermedia, *Mer.*), in order, as he says, to draw attention to its characters; a bad principle to go upon in botany as in ethics. It is also, according to Gaudin (Fl. Helv. vi. p. 289), the P. alba, γ. *denudata* of Spenner, Fl. Frib. ii. p. 274, and I think it probable to be likewise the P. hybrida of M. Bieberstein, Fl. Tau. Caucas. ii. p. 422, as drawn at least by Reichenbach (Icones Fl. Germ. tab. 615), for the description of Bieberstein does not quite agree with the figure. For my own part, not having seen fructification, I know not whether to look on the Pagham tree as a hybrid or a subglabrous variety or rather state of P. canescens, but am more disposed to the latter opinion.

The next point to be considered is the alleged difference in the form and number of the stigmas in our two poplars, and here I am unfortunately not in a condition to offer any opinion from personal research, having hitherto failed in all my efforts to obtain pistillate catkins of P. alba and P. canescens. These trees do not flower here till they have reached a very considerable height, when the catkins are for the most part quite out of reach, and produced chiefly on the highest boughs. The few catkins of P. alba I have been able to procure have been staminate ones, and I suspect the pistillate plants are much rarer than those of the other sex, as I think is the case with P. tremula as well. I can therefore at present only collect the observations of others, and consult plates of the species, from which, and from what I have seen of the same organs in P. tremula, I am forced to infer that no reliance can be placed on the number or even shape of the stigmas in any of our British poplars. In Guimpel and Hayne's 'Abbildung der Deutschen Holtzarten,' ii. t. 201, 202, are good figures of P. alba and canescens, the branch of the latter apparently from a young tree or shoot; in this the stigmas are drawn as small, upright, green, decurrent, and apparently two-cleft (seen in perspective), not as in E. B., large, spreading, reddish, and palmately four-cleft (nor as eight separate stigmas, as Smith assigns the species). In Fl. Danica the figures of these species in vol. xiii. t. 2182—83, though finely engraved, represent the stigmas as precisely the same in each, namely, four, simple, filiform and spreading; the former plate intending to represent P. alba, so far agreeing with the character laid down by Smith, but the leafy branch is more like what I should have called P. canescens, having roundish, sinuate, unlobed leaves, of small size, and like those of P. tremula in t. 2184. The plate 2183, professing to give the true canescens, has leaves of a very ambiguous character, quite deltoid or triangular, like the smaller ones of P. alba, but the stigmas, as before stated, are the same in both, and quite unlike those in E. Botany or in the German work just quoted. This remarkable discrepancy in the form of the stigmas in three works of such repute for accuracy, coupled with my own observations on the same organ in P. tremula, to be noticed presently, lead to the inference that the stigmas are liable to great variation in size, shape and colour, and therefore cannot be safely trusted as discriminative of the species in this genus. From all that has been said I think it more than probable that P. alba and canescens are but forms of one species,* of which P. canescens may be considered as the typical state, as oftenest found wild, and P. alba as a variety with larger leaves, resulting from cultivation or a moister and richer soil.

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* The great affinity in structure between Salix and Populus renders it highly probable that hybrids are occasionally produced betwixt species belonging to the latter genus, but the stigmas in Populus are less exposed and the pollen less attractive to bees than in the willows, mules would therefore naturally be less common amongst the poplars than the willows.

Populus tremula. In low, damp, also in dry upland woods and thickets, especially on stiff clay soils; a truly, and perhaps the only really, indigenous poplar in this county and island. Abundant in Quarr Copse, and on the wet, slipped land along the shore betwixt Ryde and the Priory, &c. In Shanklin Chine. Frequent in woods about Cowes. In Stapler's Copse, Nunswood Copse and elsewhere about Yarmouth, abundantly. In Barton or Bucket's Copse, between Osborne and Barton farm (the property of her Majesty) are some very fine aspens of great height and size. Woods at Selborne and in other parts of mainland Hants, but having omitted to note down the stations, I forbear to give them from memory merely. Stigmas four, bright crimson, nearly erect, slightly diverging only in two pairs; each (in all the specimens I can collect in this island) expanded into a broad, irregular, waved and crenate lobe, in shape resembling a cock's comb, or the fleshy inflorescence of Celosia cristata. The great differences in the shape of the stigmas, as I find from that given them in E. Botany and the authors quoted under the two preceding species, only prove how variable are these organs as regards form and perhaps number also. In my specimens the stigmas are constantly four, but in place of being linear or awl-shaped, as Smith describes and Sowerby figures them, they are invariably lobed and notched in the manner above stated. In the plate of this species in 'Flora Danica' (t. 2184) the stigmas approach those of my specimens in form, but are much more simple or regular, widely spreading, or even reflexed, scarcely at all lobed, and much smaller, nor are they, any more than in mine, furnished with a basal auricle, as mentioned by Smith, and so drawn in E. Botany.* Guimpel and Hayne (Abbild. der Deutsch. Holtzart. ii. t. 203) come much nearer in their delineation of the stigmas to my own examples in size, shape and colour, from whence I conclude these organs vary according to age and development, if not in each individual from other causes. I found in a staminate catkin from Bucket's Copse in 1843, several hermaphrodite flowers, the stigmas of which were fully formed and of the usual size. I have remarked the brown, glutinous flower-buds of the Aspen to smell strongly of malt.

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* Les caractères du *P. canescens* se nuancent tellement avec ceux de *P. alba*, quil serait peutêtre plus avantageux de les reunir. — Lestiboudois Botanog. Belgique, ii. p. 460.

†*Populus nigra.* In wet woods, meadows and by river-sides, &c.; a very doubtful native, I fear, of Hants, and rarely seen with us in any apparently wild situation. On Watchouse Point, near the Priory, probably planted, and on wet slipped clay along the shore between Sea View and the mouth of Brading harbour. Near Steephill, apparently wild, and a tree or two betwixt Ninham farm and the Newport road, in the wooded ground along the brook, as also on wet land near the shore a little west of Cowes. A tree or two near Medham, and three or four in a wood near Cliff farm, by Shanklin, but very doubtfully indigenous, as I found a solitary Horse-chestnut in the same wood. I have sometimes thought that exotic tree occasionally propagates itself spontaneously in this country, as I believe I remember

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* In this last work the floral bracts (scales) are in the separate figure represented as glabrous, doubtless through omission of the engraver.

to have heard Mr. Borrer say it frequently does in Sussex. My reasons for thinking the black poplar not indigenous with us are the same as those given under P. alba and canescens, namely, its absence in the heart of remote woodlands or on our old forest ground, and stream-sides that flow through them, as well as from its rare and sporadic occurrence in all those localities least open to suspicion of its having been purposely introduced thereto. It is, however, to all appearance so far naturalized in Hampshire, that a place could not consistently be refused it in the county flora, without excluding some other plants whose pretensions are no better than its own.

Myrica Gale. In wet thickets, bogs and on moory ground. In several parts of the Isle of Wight, abundantly. In boggy, peaty meadows along the Medina (above Newport) and East Yar, in many places abundant, as about Rookley Wilderness, &c. Plentiful in Apse Heath withy bed, also at the upper end of Sandown Level, and on the boggy skirts of Lake and Blackpan commons. At the foot of Hill Heath or Hill-side, and in Bordwood Lynch, both near Newchurch. Willow thickets by Budbridge farm, and profusely on a tract of peat bog not half a mile north of Godshill, a little beyond Munsley Hill. Sometimes in this island rising to a height of six feet. A profusely abundant plant in mainland Hants, particularly in the forest districts, where it covers acres of moorland bog. In various parts of the New Forest, as remarked by Mr. J. S. Mill (Phytol. i. 92). Abundant in a bog below Boldre church; near the Roman camp called Buckbarrow Rings, and elsewhere in the parish. Bog on the right hand below the road about three miles from Lymington towards Brockenhurst. Abundant along the line of railway between Brockenhurst and Ringwood. In the moory ground about Sowley Pond and on its boggy margins, in the utmost profusion. At Bournemouth and near the Christchurch Station. Abundant on the boggy parts of Titchfield Common and in the marshes near Grange farm, by Alverstoke. Parley Heath; Mr. Curtis in litt. and Brit. Entom. xvii. t. 763 (ex loca). I think I have seen it in plenty on Wolmer Forest, near Bishopstoke and elsewhere, but find no notes to that effect, nor have I any station as yet to record for it in North Hants, although I believe it to be very generally distributed over the county. This shrub is called, in the Isle of Wight, Golden Withy, Sweet Withy, Golden Osier, and is, if I remember rightly, used by our forest population as fuel, being from its resinous nature highly inflammable. The delightful fragrance of the leaves partakes of the combined aroma of cloves and ginger.

Betula alba. In low wet or boggy, and in elevated sandy, heathy or turfy, woods; frequent throughout the county and Isle of Wight. Marvel Wood, near Newport, is mainly composed of this tree. At Apse Castle, plentiful. Common in the New Forest, where the trees reach a very respectable height, but greatly inferior to the magnitude the species attains in the north of Britain. Boggy parts of Wolmer Forest, as well as in upland woods in most parts of Hampshire. I do not know if we have both the species or varieties (B. alba and B. glutinosa) given in the 'Manual.'

Alnus glutinosa. Common in wet swampy ground, water meadows, banks of rivers, streams, &c. throughout Hampshire. Often forming groves or thickets by itself, called Alder swamps or Alder cars, as at Alverston and elsewhere in this island.

Fagus sylvatica. In dry, and more especially steep upland woods; less abundant in the low flat grounds or along the sea coast; profusely on almost all the chalk ridges of the mainland, on the precipitous flanks of which it constitutes vast natural woods, called in the county "*hangers*," sometimes composed solely of beeches without any undergrowth whatever, at other times filled up with a dense thicket of brush, or intermixed with yew, ash, oak and other forest trees. The profound silence and solitude of these woods, standing betwixt converging hills, which they clothe to their summits, and descend on their opposite side into valleys as lonely and devoid of life and sound,—where the eye cannot pierce the interminable vista of tall, straight and smooth boles shooting up high over head ere they expand into the leafy canopy that half excludes the day, shedding a twilight gloom on the pale brown flowerless ground, bestrewn with many generations of fallen leaves, crisp and crackling under the tread of the sylvan wanderer,—inspire a strange feeling of awe, half akin to fear, and the words of Dante in the opening canto of the 'Inferno' unconsciously recur to memory:—

E quanto a dir qual era è cosa dura
Questa selva selvaggia, ed aspra e forte,
Che nel pensier riunuova la paura!
Tanto è amara che poco è piu morte.

Such is the character of our beech woods in their inmost recesses and in their most exclusively unmixed features, but on the sunny slopes of the chalk hills, where the beeches stand detached and interspersed with other trees and a rich undergrowth of shrubs, beauty and verdure take the place of gloom and monotony. In the dark deep valleys or ravines before alluded to, an occasional holly, yew or juniper, rising betwixt the bare trunks, breaks with its black melancholy green the sombre continuity of shade, only to make it more sombre and lifeless still; but on emerging from these pent-in valleys, and gaining the outer escarpments, a scene of sylvan softness and variety succeeds, and the beechen woodland, now open to the light of day and animated with the song of birds and the hum of insects, no longer oppresses the mind with a sense of loneliness and desertion as before. The steepness of these hangers is such as in some places hardly to afford footing to the explorer, and down the angles formed between the smaller crests and ridges, the rains plough gullies in the chalky ground called in the county "slidders," from their excessive slipperyness, and which it behoves him to descend with caution should he choose them for his path to the plain below. These beechen uplands abound with a variety of interesting plants and shrubs, some of them rare and local, others common to them and the low country, as Monotropa Hypopitys, Cephalanthera grandiflora and ensifolia, Herminium Monorchis, Helleborus viridis and fœtidus, Daphne Laureola and Mezereum, Pyrus Aria, Aquilegia vulgaris, Listera Nidus-Avis, Convallaria multiflora, Ophrys apifera and muscifera, Epilobium angustifolium, Taxus baccata, Rhamnus catharticus, &c.

In the Isle of Wight the beech is far less abundant than on the mainland near the coast, and the beautiful hanging woods of this tree that form the pride of Hants and the adjoining counties of Surrey, Wilts and Dorset, are quite wanting on our side of the Solent. Here the beech occurs sporadically, and I have sometimes even thought it might not be aboriginal in the island; it appears, however, as if quite wild in some of our rocky woods, as in Cowpit Cliff Wood, near Shanklin, and elsewhere, but rarely, and never attains here to any remarkable size except where it has been planted, as in Appuldurcombe Park, which abounds with fine beech timber. In the New Forest the beech grows detached and intermixed with oak, birch and holly in open glades, and although attaining a large size, seldom, if ever, forms woods of itself in the lower flat country, but only on the hills.

I shall not here enter upon the discussion of the question that has been raised by a few of those classical objectors who measure every opinion by the standard of antiquity, and who would rather think wrong with the ancients than be set right by Nature; namely, that the beech cannot be an aboriginal native of Britain, because Julius Cæsar tells us he found neither pine nor beech in this country at his invasion of these islands. I have elsewhere in this paper remarked on the absurdity of pinning one's faith to any ancient text, with all its liability to corruption or misconstruction from time and the ignorance or carelessness of transcribers, before printing gave thought power to fly about the world on a hundred wings in unimpaired originality of expression as of conception. I suppose a botanist could scarcely be found at the present day hardy enough to risk being laughed at for quoting Cæsar's 'Commentaries' to prove that the beech was no true Briton: the *prestige* of classical authority, like the Aristotelian philosophy once and so long paramount in the schools, has vanished before the practical and inquiring spirit of our age, and we learn to know Nature by her own teachings, not from the dicta of her disciples or the wording of a musty record. Yet I confess, the objections that have been taken against admitting the nativity of several British plants whose claims have been discussed in these Notes, appear to myself not a whit more reasonable than in the case we have been just considering, since we have here the sanction at least of a great *name* of antiquity, be its authority in botanical matters what it may; in the other instances we have little but bare conjecture or unproved assertion as the foundation of doubt. I have often, like Mr. Watson, felt desirous to ascertain the real or natural limits of the beech in Britain, which we may hope to see accomplished through careful observations by northern botanists. On the continent of Europe this tree ranges to a latitude as high as the extremest north of Scotland, but there can be no doubt it fails in Britain several degrees lower than in Sweden, the southern part of which country is quite within the true beech region, which occupies the greater part of central and western Europe, in the plains or at moderate elevations. It is rare or wanting in the extreme eastern countries of the continent, as Poland and Russia, being comparatively a tender tree, and according to Fischer (Versuch einer Naturgeschichte von Livland, 2te Auflage, s. 631) apt to suffer from the cold of winter at Riga, lat. 56° 57′, when not sheltered by its neighbours of a hardier kind.

†*Castanea vesca.* In woods and hedges; not uncommon in the Isle of Wight and county generally; perhaps really naturalized in the strictest sense by spontaneous dissemination in many places, but rarely; more frequently planted, and certainly, I conceive, very doubtfully indigenous to any part of this realm. In Lorden Copse, near Shorwell, are several trees of considerable girth and evidently great age, which in certain seasons produce small but well-flavoured

fruit, as I learn from the country people, whilst in other years the nuts do not fill in the shell. Climate, however, would seem not to be the cause of failure in the fruit of the chestnut in this part of England, since even that of the beech is apt to be abortive in a similar manner, becoming as it were atrophied by absorption, the nuts appearing to the eye as large and well filled as usual, but on being broken are found to be hollow, with no trace of any part of the seed visible excepting the hairy funiculus. The practice of planting young chestnuts in the copses, amongst the brushwood, is so frequent with us on account of the value of the wood of a few years' growth for hop poles, that it is next to impossible to say where this tree is of spontaneous origin: I am inclined to believe that the few old chestnuts that are to be found scattered here and there in our woods and hill-side copses may be of Nature's planting, in so far as they were seedlings from trees originally introduced. I have found the chestnut apparently wild in this sporadic condition near Petersfield and elsewhere, both here and on the mainland, but have never remarked it in any considerable numbers where I could persuade myself that it was not introduced by human agency. Compared with the beech its power of occupancy with us is very feeble, which is not the case in those countries where the chestnut is truly indigenous, as few trees are more gregarious than both this and the beech where the climate and soil are suitable; witness the vast chestnut groves that clothe the lower mountain ranges in the south of Europe. Mr. Watson (Cyb. Brit. ii. p. 377) very justly remarks that the chestnut "does not spontaneously spread and multiply so as to obtain a hold over the wastes and neglected places, after the manner in which we see the Quercus or the Pinus establish itself without human agency, or even in defiance of human processes which oppose and impede the natural tendency to spontaneous increase." True it is, that such power of occupancy is not in all cases needed to prove a tree indigenous, as some species are in their nature sporadic, and enter but sparingly into the general constituents of the forest, as Pyrus torminalis, Ulmus montana, Prunus avium, &c. Neither is the tendency to spread and multiply abroad and take possession of the waste places of the earth confined to such trees as are aboriginal to the soil they usurp, a notable instance of which I shall soon have to bring before the reader ere dismissing the Dicotyledonous plants of the county. But we may well expect to see trees that are naturally gregarious equally social, or nearly so, in all climates fitted for their spontaneous growth, and unless we find them obviously multiplying by seed and maintaining their position with unquestioned natives, may reasonably entertain distrust of their aboriginality. As regards the chestnut, I cannot actually prove its spontaneous dissemination in our woods by natural means, although disposed to admit the fact from certain appearances which favour the conclusion; my objections to receive it as a native tree are founded, however, upon other considerations, of which the principal is its geographical distribution. From careful comparison of the accounts given by botanical investigators in both hemispheres, I come to the conclusion that the chestnut ceases to grow wild in Asia, Europe and America on or about the 44th degree of latitude, although in Europe at least it may be carried much further north by cultivation, and may even continue to propagate itself spontaneously in favourable situations in France, Switzerland, Germany and England. It has indeed been doubted whether the chestnut be aboriginal to any part of western Europe, even the most southerly, because its name in all European languages comes from one root, and intimates its alleged dispersion over our continent from Castanea, a city of Thessaly.* Without entering on the discussion of the truth of such refined speculative reasoning (to be always admitted with caution when opposed to the evidences which nature presents), I may remark that probability is very greatly against the chestnut being indigenous to any part of Europe north of the Alps, or (with perhaps some partial inflections) beyond 44 or 45 degrees of latitude. It is wanting over the greater part of Germany, and only occurs in a cultivated condition in Hungary, Lower Austria and the Tyrol. It is unknown in Russia proper, and first appears in the conquered Caucasian provinces of that empire according to Pallas and M. von Bieberstein. Koch says of it (Syn. Fl. Germ. et Helv. 2nd edit. p. 736), "Colitur, et in regionibus calidioribus sylvas format solâ culturâ ortas." Such I have little doubt was the origin of the chestnut woods that formerly existed in the south of England, as the gigantic trees of this species still in being prove it to have been introduced at a very early period into Britain. Turner, writing in 1568, says, "Chestnut trees grow plentuously in Kent abroad in the fieldes and in manye gardins in England," (Herb. p. 114). Gerarde still later affirms, "There be sundry woods of Chestnuts in England, as a mile and a half from Feursham in Kent, and in sundry other places." I believe these old woods are now destroyed, but the tree is abundantly cultivated in the present day for hop-poles, a use it could not have been put to in Turner's time, since hops were not then grown in England, as we have seen under that plant. In America the beech and the chestnut flourish together at the sea level; I found them so growing in Canada West as far north as the parallel of Niagara or lat. 43° 27', where it is still very common in the woods.* In the south of Europe below the limits assigned as the true natural boundary of the chestnut, this and the beech inhabit zones of different elevation, and are seldom, if ever, seen associated, though both very gregarious by nature, showing clearly that a different climate and temperature is required for each. Now since the beech finds, even in the south of England, a climate congenial to its spontaneous growth at very slight elevations above the sea, or at the level of the ocean itself, is it likely that the same temperature so appropriate to the well being of the beech would equally suit the chestnut, which on the mountains of Italy and Spain is always found inhabiting a zone of elevation quite distinct from and subordinate to that occupied by the beech? The proper region of these trees is essentially different, and furnishes, I think, a good additional argument for rejecting the claim of the chestnut to aboriginality in Britain.

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* Many of the plants in common cultivation in the south of Europe for use or ornament, as the Vine, the Fig, the Olive and the Judas-tree, have been supposed of Asiatic origin, and to have been introduced into our quarter of the globe as civilization advanced westward. Having myself seen all these plants in places where they had a perfectly native aspect, I am grown very sceptical on this point, and believe that Vitis vinifera, Olea europæa, and Cercis Siliquastrum are the truly indigenous representatives in Europe of their corresponding genera in the New World, where under similar latitudes or nearly so Cercis Siliquastrum is replaced by C. canadensis, Olea europæa by O. caroliniana, and Vitis vinifera by V. Labrusca and its congeners, it often happening that a genus of which there exists but a solitary European species has two or more American representatives under the same parallel of latitude in both hemispheres. The great similarity of type in the vegetation of Europe and America strongly favours this idea of community of genera and even of species, so that as regards the chestnut, since it is an acknowledged native of the Old World, its absence from the flora of Europe up to the parallel it attains in the New would rather be a matter of surprise, considering how extremely common it is in the latter, and that the species differs little or nothing as it presents itself in either hemisphere. Lindley has indeed gone so far as to rob the "littora myrtetis lætissima" of Italy of their chiefest glory, for he tells us in his 'Vegetable Kingdom' (second edition, p. 736) "Myrtus communis, the most northern species of the order (Myrtaceæ), is a native of (Persia, but has become naturalized in) the south of Europe." I am not aware from what source the Doctor got this information: the introduction of the myrtle into our quarter of the world from Asia must have been from the remotest antiquity, which in itself would be a reasonable cause for doubting the fact, did not the vast profusion and wide dispersion of the myrtle over every part of the Mediterranean shores and much of the Atlantic coasts of Spain and Portugal pretty plainly refute that tradition.

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* The American beech, F. ferruginea, although long regarded as a variety of the European F. sylvatica, is unquestionably a most distinct species, and much the handsomer tree of the two, the leaves greatly larger, distinctly serrated, and so nearly approaching those of the chestnut as in very young trees to be scarcely distinguishable from them at first sight. F. ferruginea grows wild sporadically in the low country of Carolina and Georgia. I have seen it in the forests near Savannah in company with Magnolia grandiflora, Gordonia lesianthus and Palmettos under a mean temperature of 66 Fah. and 32 degrees of latitude. In the south of Europe F. sylvatica is never found spontaneous at the sea level or descending on the mountains into or below the region of the chestnut.

Wm. A. Bromfield.

Eastmount, Ryde, Isle of Wight.

(To be continued.)

On the Locality for Tulipa sylvestris at Bitton, Gloucestershire.

By T. B. Flower, Esq., F.L.S.

I think it necessary to mention in the pages of this journal, that the locality given for Tulipa sylvestris at Bitton, on the authority of the Rev. H. T. Ellacombe, is an error, as I have been informed by that gentleman,—the plant having been traced from his garden into the meadows near the church. The locality being now destroyed, but mentioned in the last edition of Withering's 'Arrangement of British Plants,' I have been induced to send the present communication, for scarcely a season passes without some botanist being disappointed in not finding it, and also to prevent the propagation of the error.

T. B. Flower.

Seend, Melksham, Wilts,
March 6, 1850.

Contents of the 'Botanical Gazette,' No. 15, March, 1850.

On Proliferous Heads of Trifolium repens. By Robert C. Austen, Esq. With a lithographic plate.

Description of a New Botanical Drying Apparatus. By T. Twining, Jun., Esq. [A sort of trellis-work or open railing is substituted in place of the usual boards, both externally and between the strata of paper internally; thus insuring a free circulation of air; although at the sacrifice of that more complete uniformity of pressure which is given by a plane board. The apparatus is well adapted for use where the process of desiccation can be expedited by a current of hot air. The clear description is rendered still more clear and descriptive by the aid of two wood-cuts.]

On the Definition of Species, Sub-species, Races and Simple Varieties. By M. Chevreul. [Translation from the 'Annales des Sciences Naturelles,' 1846.]

On the Fructification and Germination of the higher Cryptogamia. By W. Hofmeister. [Translation from the 'Botanische Zeitung,' Nov. 9, 1849.]

A list of Plants growing in or near Farnham, Surrey. By Walter W. Reeves.

Literature: Contents of various botanical periodicals. Proceedings of Societies.

Miscellanea: Records of Localities; M. Alphonse De Candolle's resignation as Professor in the Academy, and Director of the Garden, at Geneva; Culture of Madder in Greece; Obituary, Count J. C. von Hoffmansegge.

Contents of 'Hooker's Journal of Botany,' No. 15, March, 1850.

Botanical Excursion on the Amazon, S. America. By R. Spruce, Esq.

Decades of Fungi. By the Rev. M. J. Berkeley.

Extracts from Dr. J. D. Hooker's Letters. Continued.

Botanical Information: Professor De Candolle; Dr. Asa Gray; Bourgeau's new journey to Spain, as botanical collector; Death of Dr. Koch, and of John Nuttall, Esq.

Botanical Society of London.

Friday, February 1, 1850. Arthur Henfrey, Esq., V.P., in the chair.

The Secretary read a letter from the President nominating the chairman Vice-President, in the room of the late Edward Doubleday, Esq.

Donations of British plants were announced from Mr. Borrer, the

Rev. W. A. Leighton, Mr. J. D. Salmon, Dr. Mitchell, Mr. C. Prentice, Mr. F. J. A. Hort, Mr. J. A. Brewer, Mr. P. Gray, the Rev. W. N. Hind, Mr. E. Brown and Mrs. Atkins.

The continuation of Mr. W. H. Coleman's paper 'On the Plants indigenous to the Neighbourhood of Horsham, Sussex,' was read.

Friday, March 1, 1850. John Reynolds, Esq., Treasurer, in the chair.

Donations of British plants were announced from Dr. Southby, Dr. Joseph Dickson, Mr. R. Ranking, Dr. Mitchell, and Mr. Wing.

Mr. F. Townshend presented specimens of the supposed new species of Glyceria, G. pedicellata, intermediate between G. fluitans and G. plicata, described in the 'Annals of Natural History' for February, 1850.—*G. E. D.*

Discovery of Epipactis ovalis in Herefordshire, with Notes of the more interesting Plants found in a Day's Excursion on the Great and Little Dowards. By William Bennett, Esq.

On the 22nd of 8th month (August) last, we started for Whitchurch, six miles from Ross, on the Monmouth road. The Dowards are two of a series of rough limestone hills, the steep sides and picturesque outlines of which contribute so much to the far-famed beauty of the banks of the Wye, in these parts. The Great Doward immediately overlooks this village. Under the guidance of a friend of one of our party resident there, we took a steep pathway just opposite the Crown Inn, terracing at first amongst cottages, directly up the hill. By the sides of a brook, on leaving the road, grows Epilobium roseum, a plant not uncommon in this district. A little higher, Hypericum maculatum is found sparingly, and Hypericum montanum in great abundance. On a dry, sandy spot, close to a neat little school-house, lately erected in a most romantic position near the summit of the hill, Plantago Coronopus was plentifully growing. The views of the valley below from the various points which this elevation affords, are delightful. It commands one of the broadest parts of the vale of the Wye; and at this season of the year we looked down upon farms and cottages, and happy corn-fields, some being cut, some carried, and some still waving with the golden promise of a beautiful autumn. Upwards, the river winds away behind the bold buttresses of Huntsham Hill, with its singular crest or coronet of noble rocks, and downwards is lost among the finely-wooded bases of the hills towards Monmouth. The rich plain opening out in the former direction, is ornamented with many genteel villas; among which Goodrich spire peeps out conspicuously, while the distant prospect comprehends the flat tops of a portion of the chain of the Black Mountain, in Brecknockshire, the Clee Hills, in Shropshire, and other promontories, wearing an aspect such as one may imagine to belong to the ancient land-marks of the post-Silurian or Devonian sea. In the open spaces among the brushwood on these heights, Gnaphalium rectum was gathered in some plenty. We sought in vain for Cuscuta epithymum on the Calluna, which, including the delicate white variety, grows here, in great beauty and profusion. It is curious that not one of this family of parasites should, as far as we know, occur in this district spontaneously. Cuscuta Epilinum appeared upon crops of flax in 1847, the only occasion of its culture being attempted in this neighbourhood; but that species has no farther claim to nativity, since its victim, so far from being wild, can hardly maintain its ground as a garden escape. Along the summit of the hill, Gentiana amarella, by no means a common plant in these parts, grows exceedingly fine. A little further is a beautiful patch of Campanula rotundifolia, purely white, which has maintained its permanence for several years. Atropa Belladonna, then past flower, has spread itself by numerous healthy young plants coming up on the broken, rough ground, or among the debris, wherever there was an excavation. Viola hirta is here abundant.

Proceeding along the crest of the hill, and bending southwards, the views, which now include the further windings of the Wye in that direction, and the town of Monmouth, are rich and beautiful in the extreme. The opposite hills, forming the immediate bank of the river, are clothed with fine oak woods coming down to the water's edge. Among them is to be seen the celebrated druidical remain,—a portion of the wood being cut away in order to exhibit it at a distance,—known as the "Buckstone." On descending into the valley between the two Dowards, we come upon an extensive cavern, with several chambers and passages, known as "King Arthur's Hall." It is profusely ornamented with ferns, but all of the commoner species.

Continuing along the pathway towards the river, Cardamine impatiens is found in plenty, principally in spaces on both sides, where the wood had been cut down. And here we first came upon Rubia peregrina, scrambling in the thickest places, over almost every bush. It was past flower and covered with its berries in these lower parts of the river; but about some rocks higher up, we afterwards found it in full flower. Here, too, was Hippocrepis comosa, a rare plant in this district. The captain of our party, William H. Purchas, of Ross, had likewise the good fortune to light upon Carex montana, though but sparingly; the second locality in which he has found it, and the third only at present authenticated. It is here, as in the Wyndcliff woods, accompanied by C. digitata. The latter plant occurs in the steep woods on the other side of the river at the foot of Symon's Yat, and he has often searched for the former in that spot, expecting some day to find it, from the similarity to the Wyndcliff station. Its discovery on this occasion was an agreeable surprise, but it will very probably turn up in many other localities.

We now directed our course to the Little Doward, so named, though scarcely inferior to its elder brother, and more conspicuous in position. It is crowned by a spiral observatory, forming a landmark for the country round. One object of our excursion was Lactuca virosa, which we had been informed had lately been found here. After some steep climbing, nearly in the direction of a new stone wall, which has been run very needlessly in the eyes of a botanist in such a rough and little frequented portion of the country, from the very summit of the hill to the river's brink, by way of a recent inclosure of the Little Doward, we came to a large, rough quarry about half way up the hill. We had noticed Artemisia Absinthium among the loose rubbish cast out in constructing this wall. From a point overlooking the quarry, W. H. Purchas espied on a ledge a plant too distant to make out, with branches ascending, not accessible from above, and somewhat difficultly from below. On going round, and mounting steadily from ledge to ledge, the lightest of our party soon got at it, and returned in triumph, dragging a magnificent specimen of the said Lactuca, measuring very nearly eight feet from the root-leaves to the extremity of the corymbose head. We sat down to carve up the mammoth into manageable portions for the various botany-boxes, unanimously agreeing that the perfect specimen, if brought home, was too large for any Bentall that has yet been manufactured. We afterwards found plenty of plants of smaller and more portable pretensions; and observed that it was abundantly self-sown, higher up about the rocks.

The summit of the rocks that crown this shoulder of the Little

Doward, commands another enchanting view of the river scenery. The rocks themselves are covered with a good sprinkling of Asplenium Ruta-muraria, not a very common habitat for this fern, more usually addicted to old walls, bridges, and other more or less artificial localities. Several zigzag pathways conduct down the hill; and in many parts they were completely fringed with Geranium sanguineum. It was now all but past flower, but in the season must present a gorgeous sight. Here and there were interspersed the pretty tassels of Serratula tinctoria. About one-third down, at a point so precipitous that the successive ledges of rock beside the pathway were brought on a level with the eye in the descent, the youngest of the party checked his career, and drew up suddenly to a dead stand at a plant which those who were in advance must just before have passed. "*Eureka*—back again—come and see before it is plucked—Epipactis *non-scriptus!*"—were the successive shouts, as the one who was immediately following spied two more of the same plant on another ledge among the bushes. "It must be *ovalis*, what a glorious find!" pronounced the best botanist of our party, after due examination. One specimen was gathered with the root, those of the others we were careful to leave uninjured, as well as two smaller plants, that did not look as if they would flower this year, which were all we were able to find.

The plant is smaller, of a much less robust habit, and more graceful, with the spike far less profusely flowered, than Epipactis latifolia. The foliage is somewhat scanty, the leaves alternate, semi-amplexicaul, almost perfectly oval, exclusive of the point (which is uniformly eaten off in the single specimen with me), and of nearly equal size, excepting the upper one, which is attenuated to the bracteal form. On comparing our specimens in the evening at home, with a dried example of Epipactis ovalis, in the possession of W. H. Purchas, and with the figure and description of that plant in the 'English Botany, Supplement,' vol. iv. 2884, we found that though agreeing sufficiently in general appearance and character, and exactly in the kind of locality, our plant, notwithstanding its identity in the outline of the terminal lobe of the lip, did not possess the rugose, triangular, elevated crenate space in the centre. A single flower was therefore detached, and sent by post to Charles C. Babington, for his opinion, but being absent from home at the time, he did not obtain it in a fresh state. One of the three complete specimens was subsequently forwarded to that gentleman by W. H. Purchas, who in due course received from him the following obliging reply: "The Epipactis has interested me greatly, and should be looked after next summer, and the permanency of its structure determined. It is very like indeed to E. ovalis, and I fancy will prove identical with that plant, notwithstanding the terminal lobe wanting the rugose space. I presume that the tip of this lobe, when laid flat, made the lip as long as the petals and sepals. There is still much to be made out concerning the forms combined under the E. latifolia of authors. A plant which I found several years since near Keswick, and of which my friend Mr. Hort has now obtained more advanced specimens, has a lobe to its lip nearly of the shape of your plant, but then the lip is much shorter than the sepals, &c. I fancy that I sent this Keswick plant to Copenhagen lately, and it is decided by Danish botanists to be new to them." The plant has since been seen by several good botanists in London, and pronounced to be *ovalis*.

We spent considerable time in the hopes of detecting Poterium muricatum, which had recently been first announced as a British plant by G. S. Gibson, but without success. All the examples we could find with the fruit were undoubtedly referrible to P. Sanguisorba.

Hutchinsia petræa grows on the rocks above; Daphne Laureola is scattered among the woods, and Aquilegia vulgaris was observed occasionally along their margin, but all of course long past flower. Mentha rotundifolia is a plant that grows by the road-sides and pathways and in many spots in this district in the greatest profusion. On the other side the river Campanula latifolia is a great ornament. Conium maculatum forms a perfect forest in one part, of plants from ten to twelve feet high, and is scattered about everywhere. On a stony bank Glyceria distans was found, and in the woods Triticum caninum sparingly. In the river itself Ranunculus fluitans was still floating a few flowers. On the margin a gigantic form of Valeriana officinalis with unusually divided leaves, and the handsome spikes of Lythrum Salicaria and Lysimachia vulgaris were conspicuous.

Turning up the river, we met with Dipsacus pilosus in great size and plenty, both within the wood, and in the hedges on both sides the pathway. Before coming to the boat-house, where pleasure parties on the Wye mostly stop for rest and refreshment, the rocks and woods retreat, leaving a fine smooth open meadow. Here we could not help reclining a little on the green bank by the river side to watch the progress of several boat parties then passing, and listen for a short time to the sweet music and sweeter voices that arose therefrom. We were precisely opposite a façade of high rocks on the other side, which faithfully returned both the softer and the harsher notes that were directed against them. Near a barn on that side the river is a station for Inula Helenium, where we had gathered it a short time before. Further along the bank, near the new weir, we came upon a magnificent patch of Epilobium angustifolium, along with Saponaria officinalis and Hypericum Androsæmum, not uncommon. Numerous plants of Helleborus fœtidus were seen within the edges of the wood, but how far from any former habitation it is difficult to say, though at present certainly more than half a mile; for somewhat further we came to some old, abandoned iron-works, among which were growing Mentha sativa, several varieties, M. sylvestris and M. viridis interspersed, and in large beds, probably the site of the former cottage-garden of the overseer of the works.

Exactly opposite this spot is the station for Polypodium calcareum, mentioned in Newman's 'British Ferns,' p. 132, where it has probably much extended itself, by means of its creeping rhizoma readily penetrating among the loose moss and decaying leaves, and coming up often at a considerable distance from the parent plant. It now completely occupies the ground among the bushes for a considerable space, and extends up the steep side of the hill, from the bank that bounds the footpath along the river, over the greensward road that leads to Symon's Yat, and mounting the broken, rough ground towards the perpendicular wall of rocks that breast the summit, further than we have had time to trace it. It occurs also under the tall, romantic rocks on the other side of the bend, known as the Caldwell Rocks.

We were now within a mile of Whitchurch again, after a most delightful, and, as we thought, successful day, and reached that village on our return, escaping the fascination of a neat little public house, with the attractive sign of the "Symon's Yat," and the following tempting lines conspicuously inscribed:—

"The weather is very hot,
  The roads are very dusty,
Do step in and take a pot,
  I'm sure you must be thirsty."

William Bennett.

3rd mo., 1850.

Additional Note on the Ovule of Viscum album.
By WILLIAM WILSON, Esq.

(Continued from vol. ii. p. 986).

IN Dr. Lindley's 'Vegetable Kingdom,' article Loranthaceæ, it is stated, "as a most curious phenomenon," that the ovule of Viscum does not appear till three months after the pollen has exercised its influence. In February last, on dissecting some unexpanded flowers, I ascertained that the three claviform sacs (*nuclei*), represented at fig. 8, p. 985, exist previous to the period of fecundation. On the 2nd of March, the flowers having opened, I again examined the ovules, and traced the pollen-tubes very distinctly from the surface of the stigma to the region of the nuclei, but could not find any instance of actual contact. At this period each nucleus appears as a pellucid membranous sac, containing almost unorganized fluid, with faint traces of an embryonary sac at the top, where it is rounded and obtuse, and the pollen-tubes themselves are rounded and somewhat swollen at the extremity. At a later period it is probable that the pollen-tubes will be found united to the nuclei.

WILLIAM WILSON.

Warrington, March 8, 1850.

Note on the Ovary of Cucurbitaceæ. By WILLIAM WILSON, Esq.

STRANGE as it may at first sight appear to those who have not attentively studied the subject, it will be found that Dr. Lindley's view of the placentation of this order is not so correct as the one long since published by Dr. Arnott. That of Dr. Wight is founded on a mistaken opinion that the stigmas are opposite to the placentæ, whereas they are placed opposite to the rays of stigmatic tissue. In fact, the ovary of Cucurbits chiefly differs from that of Begoniads in having the margin of each carpellary leaf still more strongly involute, and its whole substance very tumid and pulpy; so that the three dissepiments, though they really exist, are rendered quite inconspicuous. Hence, the placentæ are not truly parietal, although they stand very near to the walls of the ovary in consequence of the inflexion of the carpellary leaves; and it is incorrect to say that the ovary is one-celled.

WILLIAM WILSON.

Warrington, March 12, 1850.

Remarks upon a few of the Rarer Plants found in Cheshire.

By ROBERT HOLLAND, Esq.

WHILST botanizing last year in Cheshire, I made a few remarks upon some of the rarer plants that I found. I send you my notes, that you may make use of them, if you think them worth a page in the 'Phytologist.'

Corydalis claviculata. This elegant plant is by no means uncommon in Cheshire, being found on most of the peaty soils, covering the hedge-banks, and clinging to the hedges, in masses so tangled and matted together as almost to choke up the plants over which it trails. I have seen it literally hiding the ground in woods planted on a peaty soil. The localities where I have found it the finest, and growing in the greatest abundance, are woods around Holford Moss, near Northwich, and on the hedges in various parts of the parish of Mobberley.

Cardamine amara. This grows on the banks of the brook that flows through Marthall, and it is to be found by the side of most of the streamlets in the neighbourhood.

Tilia parvifolia. Of this I have seen many fine trees in the woods around Tabley, Knutsford, but I should be cautious in recording this as a true locality, as in all probability they have been planted there.

Arenaria marina. I have never botanized on the Cheshire coast, and cannot say whether this plant is to be found in the county growing in its natural localities, but I have gathered it in a perfectly inland situation, on the margins of the reservoirs in which the rock-salt is dissolved, at the salt works, Northwich, where it grows, not sparingly, here and there a plant, as if the seeds had by some chance been scattered there, but plentifully, shooting up in every crevice of the stonework. Indeed, I should think that the distance from the sea is too great to allow of the seeds having been brought there by either birds, the wind, or by canal boats, and therefore it is fair to look upon these plants as existing evidences of a sea having covered Cheshire at some (geologically speaking) recent period. An idea beautifully followed out by Professor Buckman, F.L.S., in a most interesting little work entitled 'The Ancient Straits of Malvern.' The seeds of these plants were left when the waters dried up, they remained buried in the earth till salt works were commenced, then, the circumstances necessary for their growth being present, they sprang up, and now are to be seen flourishing upon the edge of every brine-pit. At the same place, and growing still more plentifully than the sandwort, are the Poa maritima and Glyceria distans.

Rhamnus Frangula. This shrub grows in the hedges and thickets, on light, peaty soils. Many plants of it are to be found in Mobberley.

Andromeda polifolia. Cheshire seems to be quite a favourite county with this beautiful little plant. It may be seen on most of the peat bogs, and in some places in the greatest profusion. I gathered specimens last year on Lindow Moss, Mobberley, at the latter end of June, at which time they appeared to be going out of flower; and though I found many specimens beautifully fruited, I had some little difficulty in obtaining many flowering plants. I was rather astonished to find them going out of flower so early, as I remembered having gathered them in 1848 in August. But upon revisiting the spot at the beginning of that month last year, I was agreeably surprised to find my plants coming into flower a second time, nearly all the plants now bearing flowers or flower-buds.

I do not know whether this fact of the Andromeda flowering twice during the year has ever been observed by botanists; but at any rate the knowledge of it may be interesting to some, who, like myself, have never heard of or noticed the fact before.

Lindow Moss deserves a passing notice. It is an extensive peat bog, reaching from Wilmslow to Mobberley, a distance of about four miles; the breadth is somewhat less.

From Manchester the botanist can arrive at the Moss by stopping at either the Wilmslow or Alderley station, on the Manchester and Birmingham line, from each of which places the walk to the Moss is about a mile. The place possesses great charms for the botanist. Round one side grow rich plantations of Osmunda regalis, many of the fronds of which measure upwards of six feet in length, Blechnum boreale and Lastræa dilatata, with many of its varieties, common plants, it is true, yet plants of extreme beauty, and always admired by botanists.

On the Moss itself are the Vaccinium Oxycoccos and Narthecium ossifragum in vast profusion. Drosera rotundifolia and D. anglica, Rhynchospora alba, and of mosses several species of Sphagnum. To the collector of Carices, perhaps no county will furnish so great a variety of species as Cheshire. This is doubtless owing to the undrained state of the land, and to the consequent number of marshes and damp spots that are to be met with on all sides. The edges of these wet places are fringed with Carices of many species, but especially with that most beautiful plant, the Carex pseudo-Cyperus.

ROBERT HOLLAND.

Royal Agricultural College, Cirencester.

Figures and Description of Scirpus Savii, S. & M.; *β. monostachys,* Hook; *and Scirpus setaceus,* L. By R. WITHERS, Esq.

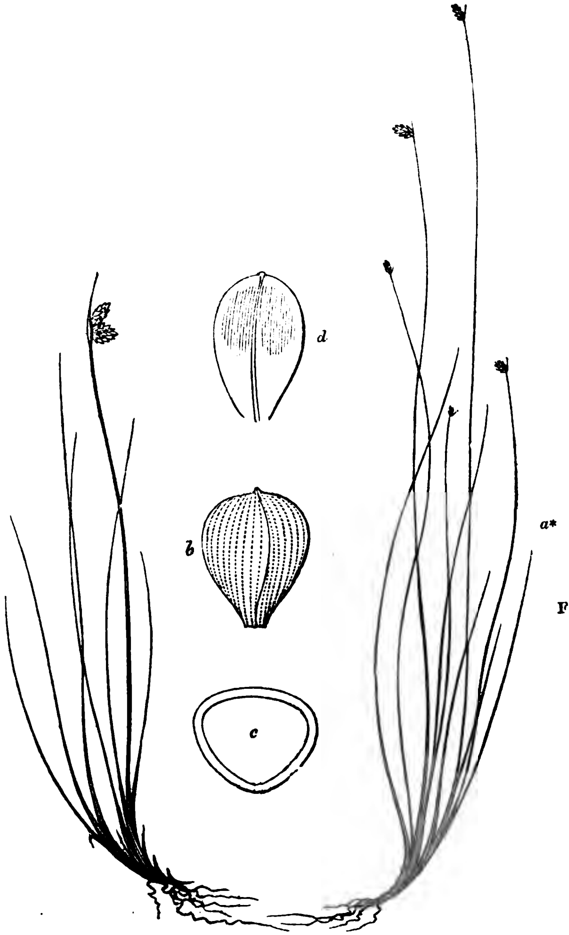

Fig. 1. Scirpus Savii (S. & M.), Isolepis (R. Br.) Fig. 2. β. monostachys (Hook.), I. pygmæa (Kunth).

Fig. 1. *Scirpus Savii* (*S. & M.*)—*Isolepis* (*R. Br.*)

a. Plant, natural size.

b. Magnified nut.

c. „ section of ditto.

d. „ glume, showing the greenish glume with the brownish spot upon each side of it, covering sometimes a large, but more frequently only a small portion of the upper part.

Hab. Under Pennard Castle, Gower; Mr. R. Withers, 1848.

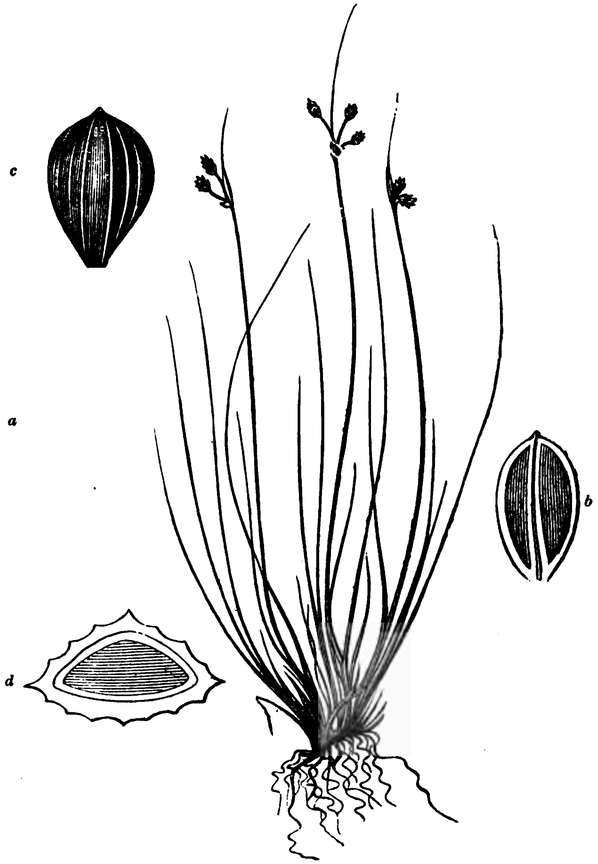

Fig. 3. Scirpus setaceus (L.), Isolepis (R. Br.)

Fig. 2. *Scirpus Savii*—*β. monostachys* (*Hook.*)

*a.** Plant, natural size.

Hab. Linton, North Devon; Mr. R. Withers, 1848.

Obs. The same magnified diagrams are as applicable to this plant as the above, the only difference being in the greater size and number of spikes, the longer bractea, and in the more stunted growth of S. Savii.

It is worth mentioning that the nuts of these two plants are as fully entitled to be termed trigonous, or at the least subtrigonous, as those of S. setaceus, but Mr. Babington, in 'British Manual,' ed. 2, says "nuts subglobose;" these nuts are also longitudinally ribbed or striated with the elevated points he mentions.

Fig. 3. *Scirpus setaceus* (*L.*).

a. Plant, natural size.

b. Magnified glume, showing the brownish spots upon either side (which spots often differ in size), and the greenish keel and margins.

c. Magnified nut.

d. „ section of ditto.

Hab. Hampton bogs, Bath, Somerset; Mr. T. Dutton, 1847.

Obs. This locality appears to me to afford plants with the spikes more pedunculated than any I have ever before examined.

R. WITHERS.

Bath, February 6, 1850.

Contents of the 'Botanical Gazette,' No. 16, *April,* 1850.

Abstract of Fries's 'Symbolæ ad Historiam Hieraciorum.' [Abridged translation from the 'Flora.']

Mr. Borrer's Notes on Plants mentioned in the 'Cybele Britannica.'

On the Duration of certain Herbaceous Plants. By T. Irmisch. [Translation from the 'Botanische Zeitung.']

Literature: Muller's 'Synopsis Muscorum Frondosorum,' fasc. v. Contents of various botanical journals.

Proceedings of Societies: [Chiefly a long report of a Monthly Meeting of the Botanical Society of Edinburgh; in reference to which we would observe on the unnecessary puerility of their reporter, in reporting over again things that have been printed and reprinted divers times in the last quarter or half century. It would seem as if the reporter for that Society, if not himself a juvenile student, was at least impressed with the notion that the appropriate proceedings and reports of scientific Societies were to be found in repetitions for the use of students.]

Miscellanea: Herbarium of Dr. Barneoud. Uses of the Borassus gomutus.

Contents of 'Hooker's Journal of Botany,' No. 16, *April*, 1850.

Gramineæ Herbarii Lindleyani; auctore Nees ab Esenbeck. [List of a few species contained in Dr. Lindley's Herbarium.]

Decades of Fungi. By the Rev. M. J. Berkeley. Continued.

Extracts from Dr. J. D. Hooker's Letters. Continued.

Botanical Information: Notices concerning J. C. D. von Schreber. Translated by Dr. Willich.

Notices of Books: Drawings of South-African Plants, by a Lady.

On the Occurrence of Asarum europæum in Wiltshire.

By T. B. Flower, Esq., F.L.S.

For several years past the Asarum europæum has been observed growing at Redlynch, near Salisbury, and having been desirous of ascertaining in what manner its introduction could be accounted for, or whether it might be considered truly indigenous in its present locality, I applied to my friend Mr. James Hussey, who has paid some attention to the botany of the neighbourhood, for information on the subject, when that gentleman most kindly procured for me the following particulars from its original observer, Mr. Popham, who formerly lived at Clarendon, but is now residing at Bagborough, near Taunton.

"It is now, I fear, nearly thirty years ago, when on my way from Clarendon, to call at Newhouse, in passing up the lane that leads from Strandlynch Down to the large chalk-pit at Redlynch, I observed a considerable quantity of a plant growing in the left hand hedge adjoining the lane. As I had never seen it before I gathered some of it, and on turning to a botanical book, I found it was the Asarabacca. I afterwards, to the best of my recollection, pointed it out to Matcham, and I think I have heard him say he mentioned it to Dr. Maton. There was a large mass of it, growing in one place only; there was no house near, and the plant had every appearance of growing there naturally. I never recollect seeing it growing wild anywhere else."

From the above statements it will be seen that the Asarabacca has now been established in the county for many years, and Mr. Hussey informs me that there is nothing in the locality to make its designed introduction there likely, except its being one of the medicinal plants. It is just possible that by some chance or other it may formerly have struck root there and established itself.

And I will now add that the late Mr. Sole makes a memorandum in his MSS. Flora, dated 1782, that he found the Asarabacca in the Duke of Queensborough's woods,* near Amesbury, and should the plant be still growing in this locality, which I hope to verify for myself this spring, I think it will go far towards the probability of its being indigenous in this county.

T. B. Flower.

Seend, Melksham, Wilts,
March 28, 1850.

On the Botanical Features of the Great Orme's Head; with Notices of some Plants observed in other parts of North Wales during the Summer of 1849. By Edwin Lees, Esq., F.L.S.

Mr. A. W. Bennett having recently contributed some "Notes on the more interesting Flowering Plants gathered in North Wales" during a trip in 1849, it may be convenient for me to add a few which that gentleman has not noticed in his tour. We appear to have gone over nearly the same ground, and like cometary wanderers, must, I think, have crossed each other's orbit, if not actually come in contact at some point between Caernarvon and Barmouth. But according to the leaning of botanists towards certain favourite genera, influencing in some degree the spots they look out for, so will be the plants they come in contact with. Mr. Bennett seems to have sought communion with the ferns, and I pushed among the bramble-bushes, *seeking* instead of avoiding thorns; not perhaps the wisest course in this world, since, walk carefully as one may, some symbolical bramble may catch one's coat at a corner, a more irritable detention than that of a button-holder! But leaving the enumeration of the Welsh Rubi to a more convenient season, I will just put myself down at Conway, where a tremendously rainy evening found me at the latter end of July last year.

Strolling into a bookseller's shop after securing quarters at the Harp, (which, by the bye, better deserved the name of *Harpy*), I found a 'Tourist's Guide to the romantic beauties, &c., of the rising and fashionable Watering-places of Llandudno and Great Orme's Head,' which, strangely enough, was to be *given away*. I snapped at this gratuitous bait, but soon perceived that the pretended "guide" was but a trap to catch the unwary, and induce them to buy the barren sand of Llandudno, there to sink capital in the shape of bricks and mortar, under the idea that "hundreds" of botanists and ornithologists annually resorted to the rocks of the Orme's Head for the sake of its rare plants, birds, &c. I was rather struck with botany being brought forward in this utilitarian way as a bait to tempt speculators; and not to bely the book, and being willing to run with the stream, determined to form one of the army of Llandudno explorators who were to recompence the speculators in sand; so forthwith ordered a car for the next morning to what Mr. Bennett as well as the "guide" calls the "rapidly rising watering-place" of Llandudno. I would, however, beg to express my hope that it may not rise any higher in *one* sense, as it is very up-hill work at present there, and indeed the new houses or crescent are proposed to be built, if ever, upon the level, sandy beach.

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* Now called the Duke of Queensberry's woods.

I need not narrate my adventures at Llandudno otherwise than as respects botanical matters, but as a warning to the "hundreds of visitors" resorting here according to the "guide," I may mention that having been induced to take lodgings, I found as much difficulty in obtaining subsistence as in a beleagured town, and one day, after a weary hunt through the place, had the utmost difficulty to obtain even a rasher of bacon! As for fish, they were only obtainable at Conway, and it really seemed as if the natives lived on *wormwood*, such quantities covered every waste spot to their very doors. Or it might have been supposed, could an old Roman have looked in from Caer Rhun, whose ruins are not very far distant, that a band of gladiators were in practice here, for such a rank growth of fennel (*Fœniculum officinale*) on the cliffs and acclivities about the village, and on almost every spot about a disused mining-work just above the beach, I never saw before. It might well bring the lines of the American poet Longfellow to mind—

"Above the lowly plants it towers,
The fennel, with its yellow flowers,
And in an earlier age than ours,
Was gifted with the wondrous powers
  Lost vision to restore.
It gave new strength and fearless mood,
And gladiators fierce and rude,
Mingled it in their daily food;
And he who battled and subdued
  The wreath of fennel wore."

The use of fennel would seem to suggest the introduction of so lofty and conspicuous a plant, and I should doubt its introduction by the hand of Nature here originally, though I admit that it appeared quite as wild as I have seen it on the chalky cliffs of Kent, yet in all cases not very far removed from houses. It may be possibly a very early colonist, since unquestionably some plants have been introduced by the hand of man earlier than others, and none will dispute the extraneous origin of such attendants upon cultivation as Chrysanthemum segetum or Ranunculus arvensis, though no one can now say when they were not apparent in the furrow. But when a place like Llandudno is in a transition state, it may appear uncertain whether houses have crept up to the original station of the plant, or the plant has escaped from the gardens of the houses. With regard to the common wormwood, no doubt *that* has clung to the Welsh from the very oldest times, and they still cling to *it*, as I saw some old women carrying off bundles to their huts, no doubt to make decoctions and infusions, perhaps very good in their way, as a shrewd miner assured me as his belief that "old woman's was better than any doctor;" and indeed I found out that no surgeon or even apothecary lived in the place. The Welsh, indeed, still trust as much in and pin their faith to the powers of herbs as the English commonly did two centuries ago, and they always fly, when indisposed, to these traditional woundworts and all-heals. A respectable Welshman of Llandudno, who has seen a good deal of the world, told me seriously that he believed his countrymen would rather die than call in a doctor, that is, a regular practitioner. The old miner I before alluded to (all are miners at Llandudno), when I questioned him on the subject, simply said, yes, indeed, their herbs "was good for everything," and snatching up a plant or two of Linum catharticum, that grew near the path, "that, now, good as Epsom salt."

First and foremost of the plants growing on the Great Orme's Head, is the Cotoneaster vulgaris. This Mr. Bennett altogether omits, and perhaps could not find, for it grows just in the last place a stranger might expect—on a limestone ledge descending in easy steps just behind a farm house called Ty-na-Coed, some distance above Llandudno village, but looking inland: it may be between 400 and 500 feet high, but the western part of the head is higher. The easy descent of this ledge causes numerous shrubs to grow there, as privet, holly, spindle-tree, and even much hazel. There is some quantity of the Cotoneaster, though growing dwarf out of the cracks of the rock: it bore ripe fruit at the time of my visit, and some of the older leaves were beautifully scarlet. This cliff, almost hemmed in by cultivation and flanked by houses, looks so tame when compared with other parts of the Orme's Head, that I had neglected it, and hunted over the northern and western precipices in vain. Returning, however, one morning from the Little Orme's Head, carelessly dangling some plants in my hand, a man rather seedily attired, though respectable in look, accosted me, and taking me, he presumed, for a botanist, asked me if I had found the Cotoneaster; as I had not, he volunteered his guidance, which I of course accepted. Besides the ledge of limestone mentioned above, he took me to another, where the plant grew, but this was also close to the back of a cottage, the cliff indeed bounding the cottage garden. I only state the fact, without making any inference, but it struck me that birds had probably many years ago planted the Cotoneaster on these rocks by transporting their berries. The late Mr. Griffiths, it appears, first gathered the plant here in 1783, but did not name it, which was left for Mr. Wilson, of Warrington, to do many years after.

I can recommend Phillips, the person who took me to the locality of the Cotoneaster, as a very good guide anywhere in the vicinity of Llandudno, and, poor fellow, he needs a little countenance from visitors in a place where anyone connected with the healing art has little chance either to live or die. Phillips has been a chemist, but is now a cattle-doctor, and also waits upon a surgeon who once a week comes over from Conway to see patients, should there luckily be any; and it is Phillips's business "if any's sick and like to die," to keep life in them until the doctor's hebdomadal visit comes round!

I ought in candour to remark that the 'Tourist's Guide,' adverted to as baited with botanists and ornithologists enough to pay for building an hotel at Llandudno, contained a list of "rare plants,"—rather a new feature in a bill of sale, though I should hardly think got up by the Liverpool auctioneer who was to sell the embryo crescent. Perhaps some local herbalist was called in, whose researches I found useful, as directing me to local points, though many of his names were erroneous, and therefore though refering to his list when he mentions an additionol locality, I shall not record what I did not myself see.

Thalictrum minus. Very plentiful and luxuriant among broken limestone in numerous spots.

Ranunculus Lenormandi. Near Barmouth, on the Harlech road.

Papaver dubium. Abundant about Llandudno on waste spots, but no other poppy.

Glaucium luteum. Very profuse upon the shore of the bay.

Sisymbrium Sophia. Near Duffin Mill, one mile from Conway towards Llanrwst.

Lepidium Smithii. I can corroborate Mr. Bennett as to the *present* abundance of this plant in Caernarvonshire, but I am inclined to think it a late immigrator. Plentiful on the embankment by the side of the new road to Conway, equally so between Conway and Aber; between Barmouth, Merionethshire, and some farm-houses on the hills; also in Anglesea, near the Bangor Ferry, but Davies has no mention of it in his 'Welsh Botanology,' published in 1813, nor have I any previous note of the frequency with which it now presented itself.

Crambe maritima. Finely in fruit on the stony beach near Rhiwleden.

Helianthemum canum. On the upper limestone rocks above Ty Draw. This was in fruit in August, while H. vulgare was abundantly in flower.

Dianthus plumarius. Prettily adorning a part of the old walls of Conway.

——— *deltoides.* Interesting and numerous on the slopes of Craig Diganwy.

Silene nutans. Not scattered about plentifully, but only in a few favoured localities, as the Cotoneaster ledges, Little Orme's Head and Craig Diganwy.

Alsine (*Arenaria*) *verna.* Among the rocks about the Old Copper Mine.

Lavatera arborea. Several together on the waste bank of the Conway river below Diganwy, but planted probably, or got out of bounds.

Hypericum maculatum. Not uncommon in Caenarvonshire. Very fine and tall among bushes below Pont Aberglasslyn; also numerous near Llyn Gwynant, on the road between Beddgelert and Capel Curig. A well developed species, the floral leaves and sepals only having "pellucid dots." The petals abound with glandular matter running in streaks and accumulating at the ends of them, and this scorched by the sun's rays makes the dark streaks and black dots so conspicuous on the petals. On the sepals there are scarcely any black dots. The capsule is reticulate with glandular lines forming ribs upon it. Mr. Babington gives H. dubium of Leers as different from this, but except in the entire and broader sepals, there seems no character to distinguish it, and I should consider it as merely a variety, if entitled to even that distinction. I gathered an Hypericum on the mountains behind Barmouth smaller and more delicate in aspect than the general form of maculatum, and which might well agree with dubium as described; but after attentive examination I could trace no permanent distinction. Both had the stem with a membranous border, here and there dotted with black from the glandular matter within it; both had the upper leaves and sepals "with a few pellucid dots," and both had their petals streaked with pellucid glandular lines, much blackened or scorched beneath: the sepals, too, of both had pellucid streaks at their base. The "minutely denticulate" sepals, relied on by Babington as a distinctive character for maculatum, arises merely from the membranous border being occasionally broken in outline, and though this is not so obvious in the smaller mountain form, a lens shows the same character more or less obviously. Babington describes the sepals as "reflexed" in both plants, but I find them always patent in flower, and very loosely or carelessly reflex even in fruit.

Hypericum montanum. On the shrubby part of the Orme's Head, and at Bryn Maelgwyn.

Geranium sanguineum. A conspicuous feature of the Orme's Head flora, and beautifying all the adjacent limestone hills till late in September.

——— *columbinum.* Rather plentiful on the stony declivities.

Erodium maritimum. On stone walls about Gloddaeth, and in a lane leading from the beach to Cadir-y-Nain, or "My Grandmother's Chair," an isolated limestone hill east of the Little Orme's Head, crowned with stone fragments like the base of a tower.

Linum usitatissimum. An instance of immigration. Apparently wild among stones on the beach, but I afterwards met with a flax-field at Eglws Rhos.

Rhamnus catharticus. In Gloddaeth Woods.

Medicago lupulina. A small variety of this, the pods, leaves and stem covered with very long hairs, occurred on the turf near Llandudno Bay.

Trifolium medium. On the turf of the Head.

Anthyllis Vulneraria. True, as usual, to the limestone; especially numerous at Bryn Maelgwyn.

Spiræa Filipendula. Abundant on the turf of the rocks, but very dwarf.

Potentilla verna. In crevices of the same ledge where the Cotoneaster grows.

Prunus Cerasus. In a hedge on the south side of Bryn Gosol, and between Conway and Llanrwst: perhaps planted by birds.

Potentilla Tormentilla, β. procumbens (*Tormentilla reptans,* Linn.)

Spreading profusely in a flagelliform manner, with stems two feet in length, on the embankment along the Conway road, but never rooting at the joints. Leaflets very deeply cut, covered on both sides with long, adpressed hairs. I see no good reason for not admitting this a species, as is done by Linnæus and Sir J. E. Smith.

Rosa spinosissima. This ubiquitous coast rose not only covers the Conway sands in dwarf thickets, but ascends to the very summit of the Orme's Head.

—— *Sabini*, *β.* Doniana (*R. Doniana*, Sm.). Surely most distinct from R. villosa and its varieties, indeed almost as spinose as the preceding, but with a fruit very different in aspect that can never be mistaken. I am well acquainted with this rose from having sent a living plant to the late Mr. Sabine, at his request, for the Horticultural Society's Garden, many years ago, from Worcestershire. I found it in August this year, growing in a bushy field in Anglesea, by the side of a lane leading up the hill from Bangor Ferry. Davies, who notices many roses in his 'Welsh Botanology,' has no record of this species, and I believe that it has never before been observed in Wales —certainly not so far west as this.

—— *micrantha.* A variety I would call *humilis.* This is a curious little rose, with excessively glandulose, doubly-serrated, sharply-pointed leaflets, but with the flower-stalks and calyx-tube quite smooth, as in R. canina. Dwarf, with sweet-scented foliage and very small flowers. On the bare limestone ribs of the Little Orme's Head and Cadir-y-Nain.

—— *sepium.* This well-marked rose I observed very fine and vigorous at a spot more than a mile from Caernarvon, beyond Pont Seiont, on the Pwlheli road. Petioles and midribs of leaflets excessively crowded with glands, leaflets broadly-ovate, hairy beneath. Calyx persistent, and reclining on the half-ripe, almost globular, setose fruit, the sepals elongated, with leafy points. The broad leaflets crowded together and numerous flower-stalks give it a very different aspect to rubiginosa, its nearest affinity. Foliage sweet-scented.

—— *villosa* and *tomentosa* are not uncommon in Anglesea and throughout Wales.

Pyrus Aria, *β.* intermedia. The usual form adorns with its silvery foliage the face of many of the most precipitous cliffs of the Orme's Head. A dwarf specimen near "St. Tudno's Cradle," or the Rocking Stone, had its leaves lobed quite as much as the celebrated plant on Castle Dinas Bran, near Llangollen, to which so many authors refer.

Sedum anglicum. Plentiful on Craig Diganwy, indeed general on the rocks of the Welsh Coast.

—— *rupestre*. On Little Orme's Head, but not abundant.

—— *reflexum*. A favourite adjunct to cottages in Wales, and at Aber whole roofs were mantled with it most singularly, but I have never noticed it wild in such a luxuriant state.

Cotyledon Umbilicus. On Craig Diganwy, but rather sparingly. "Stone walls at Llandudno."

Apium graveolens. On the coast near Gogarth Abbey.

Crithmum maritimum. Great and Little Orme's Heads.

Torilis nodosa. Side of the new road to Conway.

Smyrnium Olusatrum. One of those "domestic plants," which, whether first carried by man or not, mark where his feet have trod, and pertinaciously linger there. At Gogarth Abbey, and most abundant among the shattered ruins on the top of Craig Diganwy, said to be an ancient palace of the Welsh princes, and where Hugh Lupus, Earl of Chester, afterwards built a castle, at last taken and ruined, and not again occupied after the building of Conway Castle by Edward I. This fortress well deserves a visit from the botanist who can take it on foot on his route from Conway to Llandudno.

Rubia peregrina. Rioting in the hedges about Gogarth.

Sambucus Ebulus. At Pont Dolgarrog, on the Llanrwst road.

Inula Conyza. About Bryn Maelgwn and Gloddaeth.

Achillea Millefolium. A pretty dwarf variety only two or three inches high, the leaves, stem, and even the scales of the involucre covered with long, woolly hairs, occurred on the singular trappoid hill of Bryn Gosol, north of Diganwy. If varieties are to be noted, this deserves equal mention with the variety *Cambrica* of Solidago Virgaurea.

Antennaria dioica. Plentiful on turf of the limestone ridges above Tydraw farm, south of the Cotoneaster ledge.

Senecio viscosus. Among stones on the beach between Llandudno and the Little Orme's Head. I only observed it in one spot where there were many plants truly characteristic from their viscidity, being so encrusted with sand and black mould blown upon them by the winds, that they seemed at first view like some strange African Mesembryanthemum, the florets spreading out and much more specious than in S. sylvaticus. This is not mentioned by Davies in his 'Plants of Anglesea.'

Carduus tenuiflorus. Covering the embankment by the Conway road, close to Llandudno, in the greatest profusion. It generally occurs as a weak, unbranched plant, but here it had assumed a height and magnitude rivalling that of Onopordum Acanthium. Equally plentiful and luxuriant on the side of the road between Conway and Aber, parallel with the railway. In both cases doubtless seeds lying dormant beneath the ground had been turned up by the road operations, and on the fresh, rank soil had grown gigantic accordingly.

Silybum marianum. A colony of the "holy thistle," tall and rank, was flourishing on the rubbish of the lower abandoned mine at Llandudno; one of those gypsey plants that never stay long in a place.

Cychorium Intybus. On the borders of new cultivated ground excessively abundant at Llandudno, but not, I think, indicating a limestone soil, as Mr. Bennett suggests, for on the limestone itself I did not observe a single plant.

Tragopogon minor. On the turf near the beach; and I notice this to remark that the pratensis, as characterized, does not occur.

Helminthia echioides. Plentiful about Eglws Rhos.

Lactuca muralis. On the shady side of Cadir-y-Nain. Unnoticed by Davies.

Hieracium boreale. In a moist dingle of the Orme's Head, and more plentiful in a deep lane leading from Bryn Gosol farm.

Ligustrum vulgare. On the same limestone ledges as the Cotoneaster. Mr. Babington in his Manual only gives "Thickets in the south of England," as if its range was thus restricted; but I have observed it as generally occurring on the sea cliffs both of North and South Wales. Yet, like other berried shrubs, it is no doubt much dispersed by birds.

Chlora perfoliata. More abundant than I ever before observed it all about the sides and base of Bryn Maelgwyn, where the limestone is disturbed by the intrusion of igneous rocks. Not in Anglesea.

Erythræa pulchella and *latifolia.* The former both at Llandudno and Barmouth, the latter at Barmouth only.

Gentiana Amarella. Abundant on the declivities of the Orme's Head and Bryn Maelgwyn. Equally plentiful at Barmouth. Yet Davies says "very rare" in Anglesea.

Convolvulus Soldanella. Shores of Conway Bay.

Echium vulgare. Excessively abundant on the edge of Llandudno beach.

Solanum Dulcamara. Shore of the Conway—perhaps the *γ. marinum* referred to in Mr. Babington's Manual.

Hyoscyamus niger. Plentiful about the base of the Little Orme's Head. Phillips told me he had gathered quantities of it here for a

Conway druggist in former years, but the demand for it was not so great now.

Orobanche Hederæ? On a patch of ivy midway up an inaccessible cliff on the north side of the Head, I observed some tall specimens of an Orobanche very conspicuous, certainly this or O. minor; but though I summoned the garrison, and both Phillips and myself cannonaded the fort from above and below, not without risk to ourselves, it was all in vain. We indeed disabled a few prominent individuals, but could make no prisoners. A friend, however, showed me from Conway Castle what appered to be O. barbata of E. B. S., and now considered by Babington the same as O. Hederæ, and this was most probably the plant among the ivy on the cliff. This same barbata I have gathered from among ivy on St. Catherine's Isle, Tenby, and (however the nomenclature may be at last) it occurs generally throughout North and South Wales and Monmouthshire, especially among ivied ruins. The list in the 'Guide' mentions O. minor (?) as growing on the ruins of Conway, Diganwy and Marl.

Digitalis purpurea. I mention this to remark the partiality some plants evince to certain soils, and their repugnance to others. Not a specimen of Digitalis appeared anywhere on the limestone hills or about their bases; but when I began to ascend the trappoid rock of Diganwy, there at once appeared my old friend, reminding me of its similar position on the sides of the eruptive Malvern Hills.

Veronica spicata. On the Orme's Head sparingly, but especially plentiful on the limestone ridges extending from the Little Orme's Head to beyond Bodscallan, opposite Conway, including Cadir-y-nain and Bryn Maelgwyn. A portion of these heights is included within Mr. Mostyn's Park, and thus protected is "intensely blue" with the Veronica.

Salvia verbenaca. Rather numerous on the declivities about Llandudno.

Origanum vulgare. Abundant everywhere on the limestone.

Calamintha officinalis. On dry banks about the Lower Mine.

Scutellaria galericulata. In Conway Marsh.

Marrubium vulgare. On the dry declivities of Great and Little Orme's Head.

Verbena officinalis. Another of those dogged plants that can hardly be said to be wild at all, so closely do they stick to the skirts of mankind, as if determined to be domesticated. This has druidical fame, and here it still stops on the slopes below the stone of power. But it is yet valued medicinally, and I possess a pamphlet detailing hosts of cures of various diseases from the alleged wonderful properties of the vervain.

Primula veris. I mention this as plentiful in various places on the Orme's Head, where no primrose was apparent, and I have noticed the same thing on St. David's Head, in Pembrokeshire.

Samolus Valerandi. In watery ditches on Llandudno Common. Abundant near Barmouth, towards Cors Gochno.

Statice spathulata. Plentiful on the shore of the Conway river.

Polygonum Raii. On the sands below Craig Diganwy.

Mercurialis annua. Dr. Bromfield, in his interesting remarks on the Hampshire plants, suggests this as "more deserving of the asterisk" than many others that have it. I have noticed it, however, on various parts of the coast both of North and South Wales. At Barmouth, Merionethshire, it is plentiful on the sands edging the marshes inland in spots where no gardens could ever have been, and where it is unlikely it could have been introduced any more than the other littoral weeds with which it grows. Certainly, like Solanum nigrum, with which it is often in company, it is fond of intruding, if it can, upon olitory ground.

Parietaria officinalis. Excessively plentiful about the Orme's Head at present, but I would not feel certain that it was always so; as pellitory-of-the-wall, time-honoured still, was one of the category that the herbalist would have been sorry not to have had easily within reach.

Salix fusca, var. *argentea.* In one place on the Orme's Head, where, in a broken ravine, a spring lazily weeps down among masses of Eupatorium cannabinum, and other rank aquatics, to the sea.

Taxus baccata. An indigenous mass on Bryn Maelgwyn, and numerous isolated trees pushed obliquely by the wind from the sea about Eglws Rhos.

Juniperus communis. On many of the rocks of the Orme's Head to the very summit westward, but procumbent on the limestone, the boisterous gales not permitting it to rise upward. Yet as most of the roots are large and of great age, it is easy to imagine that the now "white pow" of the promontory had in earlier times a more verdant if not grove-like aspect. The original upright junipers have evidently been cut down, but when scattered in verdant masses, as in druidical times, must have rendered the upper stories and stone circles on the cliffs far more sheltered places of observation than they are at present. On "my Grandmother's Chair," an isolated limestone hill near Gloddaeth, some upright clumps of juniper still remain on the

N.E. side, rising to a considerable height. Davies could find no juniper in Anglesea when his Catalogue of the plants of that island was published in 1813, and he only says "I venture this as *once* an inhabitant, from the name of a place, *Cefn-y-Terywen*, the juniper bank."

Tamus communis. At Bodscallan, near Eglwys Rhos, but by no means of common occurrence in North Wales.

Orchis pyramidalis. In Gloddaeth Wood, among bushes within Mr. Mostyn's grounds, not far from the statue of Hercules.

Spiranthes autumnalis. Quite profuse in the moist sand edging the inland marshes at Barmouth, loading the morning air with fragrance..

Epipactis ovalis, Bab. In crevices of the limestone rocks above Tydraw, on the Orme's Head, southward of the Cotoneaster ledges; also under similar circumstances in the cracks of "my Grandmother's Chair," near Gloddaeth. Some of the plants were hardly more than four inches in height, and many scorched and abortive from their peculiarly exposed position on the bare rocks, but rooting very deeply, and the withered stems of former years still remaining. Stem, germen and bases of the bracts excessively scaly.

I must here close my list, as I was rather too late in the summer to be able to attend much to the grasses, and merely remarked that Triodia decumbens formed a great portion of the turf on the declivities of the Head, while Avena pubescens appeared on almost every rock. I observed Arundo Epigejos, too, very abundant and fine in Gloddaeth Woods. Of ferns, except Asplenium Trichomanes and A. Ruta-muraria, I really saw none on the Orme's Head, and the only Equisetum that occurred was E. palustre, *β. polystachion*, growing among masses of Rubus cæsius on the Conway sands.

If in the above enumeration I have duplicated observations already made, or noticed plants of frequent occcurrence or supposed to be so, that the rarity-hunting botanist would pass with disdain, still I hope that in so remote a corner, which in general botanists only dash across in their summer cometic career, the mention of what I saw growing at the time I was there in residence may not be quite useless. Indeed, it appears to me that a periodical report of the present existence of plants in a remarkable locality, like the peninsula of the Great Orme's Head, is advantageous in a referential point of view. Could my record be compared with one made a century ago, I doubt not that some plants would be found to have disappeared, and some in my list would appear as new inhabitants. Hence trustworthy record of plants within allotted bounds and seen at particular periods, must be ever useful. In fact, just at the time I was at Llandudno great changes were making in the neighbourhood, and further contemplated. The whole of the marshy flat called Llandudno Common was being enclosed and drained, pools dried up, deep ditches made, piles of turf were burning, and at night the long lines of lurid flame gave the idea of an hostile army ravaging the country. And truly it was so as regarded the botanist. Phillips told me that the bog-bean (*Menyanthes trifoliata*), that he had so often gathered for medicinal purposes, was gone, and every marsh plant had got notice to quit. One solitary Osmunda regalis I saw, and that appeared to be the last remnant of boggish times. Nature was being sternly expelled at the fork's point, and if the threatened crescent should rise on the sands, and young Liverpool crown the old Head with villas, perhaps at last even the fennel, the vervain and the wormwood may disappear with the old houses and Celtic inhabitants.

EDWIN LEES.

Henwick, near Worcester,
April 10, 1850.

Curious Species of Cypripedium.

AT the March Meeting of the Horticultural Society, Mrs. Lawrence exhibited a specimen of Cypripedium caudatum, the first that had flowered in cultivation. The colour of the flower is a sickly yellow, but the lateral petals are brown and enormously elongated, forming a long narrow pendant tail on each side: from the first opening of the flower these tails had continually and rapidly increased in length, and no opinion can be formed as to the length they will ultimately acquire: at the time of exhibition they were eighteen inches long. Professor Lindley remarked that other species of Orchidaceæ possessed similar appendages, and that those of a species found on the Cordilleras, near Lake Maracaybo, were still longer than in C. caudatum.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By William Arnold Bromfield, M.D., F.L.S., &c.

(Continued from page 854).

Quercus Robur. In woods, thickets, copses and hedges throughout the county and Isle of Wight; most abundantly. This is the common oak, not only in Hants, but I believe in most of the southern and eastern parts of England.

——— *sessiliflora.* In similar places with the last, but much more rarely, although I fear scarcely distinct as a species from the foregoing. In the sandy soil of Bordwood Copse, near Newchurch, where it was pointed out to me by Mr. Borrer during an excursion with that gentleman and Dr. T. Bell Salter, in August, 1844, growing with Q. Robur in about equal proportion. Since observed by myself in other parts of this island. A tree or two on the margin of Quarr Copse, by the side of the Newport road. In East Standen Copse, near Newport. A very fine round-topped tree in Elm Copse, betwixt Calbourne and Shalfleet. In a small hilly wood of scrubby oak bushes belonging apparently for the most part to Q. sessiliflora, close to Fareham, on the north side, overlooking the town, and where I also found Pyrus torminalis, but not in any abundance, July, 1849. Observed near Empshot, and in other parts of the county this year. Var. β. Leaves downy underneath. Durmast (*quasi* dunmast) oak, the acorns being sometimes of a reddish or dun colour, as I have found them in this island near Shalfleet. In the New Forest; Martyn. A puzzling species, if such it be, not always very well marked, but distinguishable in its most defined form from Q. Robur by its usually larger and broader, flatter and more regularly spreading or imbricated leaves, which are distinctly petiolate (the petioles yellowish or reddish), in general of a brighter, more shining green, sometimes, however, dark green, for the most part obovate rather than oblong, more regularly and evenly sinuate, the sinuses more exactly opposite and inclined to acuteness at bottom rather than to be rounded or obtuse; by a greater massiveness of foliage and compactness of the whole tree, which is, I think, more disposed than Q. Robur to assume a rounded head; by its more horizontally spreading, less tortuous branches and spray, larger-sized leaf-buds, and essentially by bearing acorns that are either quite sessile, or wholly or in part on short, erect, stout peduncles, and in general more numerously clustered. The bark is thought to be lighter coloured, and the leaves more apt to be persistent through the winter; I think I have remarked the former to be smoother on young trees, at least than in Q. Robur.* The acorns of the present species are rather ovoid than oblong, the cup approaching to one half the entire length of the gland; they are stated, moreover, when ripe, to have very generally a red or pinkish colour. All these characters are liable to great exception, fluctuating so variously between those laid down for the two species as fairly to induce suspicion of their being really distinct as such. Still, as Mr. Bree (Loud. Arbor. Brit. iii. p. 1738) truly observes, "though there are sessile oaks bearing fruit on peduncles, and pedunculated oaks bearing almost sessile fruit, there is yet a certain indescribable something about the trees, by means of which I can always distinguish each, without minutely examining either the acorns or the leaf-stalks." The present is undoubtedly the handsomer tree of the two, with a certain approach to the sweet or Spanish Chestnut in aspect, and it is said in the grain and quality of the wood likewise, having, it would appear, been commonly mistaken for that of the chestnut in some of our oldest edifices. This species approaches in the regularity of its growth, flatness and even sinuation of the leaves to the American White Oak (*Q. alba*), the nearest representative on that continent of our British oak, and scarcely inferior to it in the value of the timber it yields. The characters distinguishing Q. sessiliflora which I have found most constant, are those of the fruit and leaf-stalks; for although the acorns are often elevated on a very distinct peduncle, I have never seen the latter anything like so slender and elongated as in Q. Robur, notwithstanding that this last sometimes bears its acorns on an abbreviated stalk, very similar to the occasional one of Q. sessiliflora. The leaves in Q. Robur are most commonly very unequal at the base, with so deep a notch or sinus on one or both sides of the petiole as to appear auricled; in Q. sessiliflora the base of the leaf is more equal, and the notch, if any exists, very shallow. The leaves in Q. Robur usually lie in planes variously inclined to one another, and this, together with their wavy surface, convexity, and irregular sinuation, combine to give an air of scrubbiness to the foliage as contrasted with the neater appearance in this respect of Q. sessiliflora, in which the leaves are remarkably flat, radiating, and lying over each other in a horizontal position and in parallel planes, by which it may be distinguished at a great distance from its congener. Whether Q. Robur and Q. sessiliflora be accounted distinct or not, I can by no means agree with Fries (Corp. Flor. Provin. Suec. p. 144) in thinking that the differences between the two are owing to poverty of soil, as he confidently affirms.* From what we know of the mutability of character in Tilia and Ulmus, as also in Salix, Populus and other Amentiferæ,† we should be cautious in admitting to specific distinction a tree which in many of its states does not always present very definite limits to the marks separating it from Q. Robur.

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* The woodmen here talk of two kinds of oak, which they call the black and the white oak, but the only intelligible difference I could extract from their accounts is, that the twigs of one float, whilst those of the other sink, when thrown into water! Some of the more observant, however, amongst them distinguish more clearly our two species, the Q. sessiliflora they call White Oak and Maiden Oak, as I have repeatedly ascertained.

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* Q. sessiliflora seems to abound most in the hilly districts of the north of England and in Wales, and there to reach its fullest dimensions. At Boultibrooke, near Presteign, Radnorshire, the seat of Sir H. J. Brydges, Bart., are the finest, most characteristic trees of the sessile oak I have ever seen, almost rivalling the Spanish Chestnut in beauty of foliage, and of noble magnitude and height.

† The word Amentaceæ employed to designate the natural order of ament-bearing plants is manifestly incorrect, and nearly as bad as Graminaceæ for Gramina. The termination in *aceæ* (which it would be highly desirable, for the sake of that neatness, precision and uniformity, at once useful and ornamental in scientific nomenclature, should be unanimously adopted instead of the vague, arbitrary and often ungrammatically-constructed and mixed terminations of De Candolle, still in partial use amongst botanists) does, or ought to express, the relations which certain groups of plants bear to some typical genus concentrating in itself the leading or most prominent characters distinguishing such groups in the aggregate. Thus, Violaceæ implies a group, family or order of *violaceous* or violet-like plants, not violets themselves, but allied to or closely resembling them, having most of the peculiarities of form, structure, appearance, and properties of the genus Viola, which serves as a type or standard of comparison to judge all its allies by. But to apply the term Graminaceæ to designate the order or family of Grasses, or Palmaceæ that of Palms, as has been inconsiderately done in some instances, at once destroys the entire force and meaning of the Latin adjective termination in *aceæ*, which has a comparing efficacy, that an incorrect application of it wholly stultifies. For as there is no such genus as Gramen or Palma, these two natural orders represent themselves, and are not typified by any one genus of Grasses or Palms, to which all the remaining genera composing these orders may be referred as a standard of comparison. To compare a thing to itself is obviously absurd, because every comparison necessitates the existence of two objects to be compared; to call the Grasses and Palms, therefore, Graminaceæ and Palmaceæ, is only to declare them to be grass-like and palm-like plants, or in other words, like themselves, that is, Grasses and Palms, which is in fact a comparison only in sound. The proper designation of these orders should be Gramina and Palmæ; for Gramineæ (plantæ gramineæ) and Palmeæ (plantæ palmeæ) are only preferable to Graminaceæ and Palmaceæ as being better Latinity. In like manner Amentaceæ is highly objec-

Corylus Avellana. In woods, copses and hedges everywhere most abundantly; often constituting the main part of the undergrowth in our hilly copses, flowering here usually in February and sometimes in January.

?*Carpinus Betulus.* In woods, thickets and hedges, mostly in damp clay soils; very rare? Not found wild in the Isle of Wight, where it is only seen in plantations. In a wood abutting on Titchfield Common and in a copse by Down Lane, near Fareham; Mr. W. L. Notcutt. I can hardly believe the Hornbeam not indigenous in Hants, although I have as yet only the above stations to record for it in the county, and regarding which Mr. Notcutt speaks with some hesitation in a letter I lately had from him. The tree abounds in some parts of Sussex, as near Hurstperpoint, and in woods at the Old Roar, near Hastings. Its absence as a native production in this island is not explicable on the ground of deficiency of suitable soil, as we abound with the stiff clay in which it delights. It will probably be found in several parts of the county if searched for in damp, tenacious ground.

Taxus baccata. In woods, hedges, rocky places, borders of fields, and on open chalky downs, very abundantly over a great part of mainland Hants, mostly in elevated situations in the interior; rarer in the lower and flatter country or along the coast. Scarcely indigenous to the Isle of Wight. A few small trees occur on the slope of the down

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tionable, inasmuch as it implies an order of plants *like* aments or catkins, which is equally far from the truth and the sense intended to be conveyed in the word, whereas Amentiferæ at once declares its own meaning and the true nature of the order, which is composed of ament or catkin-*bearing* plants, just as Coniferæ is of trees *bearing* cones. In adopting Amentiferæ, too, we secure correctness and uniformity at the same time, as the termination now accords with Coniferæ, Cruciferæ and Umbelliferæ, which, had consistency anything to do with the barbarous, mixed nomenclature of the natural orders still used by many, should have been Amentaceæ, Conaceæ, Cruciaceæ! Umbellaceæ, or Amenteæ, Coneæ, Crucieæ, Umbelleæ! words, it must be owned, that would have been a disgrace to botany. But the fact is, that the termination in *aceæ* adapts itself with singular felicity to all the natural orders deriving their names from a typical genus, whilst to the few that take their appellations from the form or structure of certain parts, the ending in *feræ*, implying bearing or producing, attaches with equal gracefulness and perspicuity. Rigid grammatical correctness is not to be expected in modern scientific nomenclature, but the uniform adoption (with the above exceptions) of the ordinal termination in *aceæ* would secure it oftener than the arbitrary and capricious substitution of the endings in *eæ*, *niæ*, &c., which are only a burden on the memory to recollect, and are often wholly unsuited to the structure of the root to which they are attached, as *Violariæ*, where the *r* is quite out of place and extraneous.

above Nunwell, the only spot in the island where I have seen the yew even apparently in a state of nature, but I suspect from their limited number and vicinity to the house that they were planted there long ago. Everywhere for miles around Winchester, on the downs and in woods, at Compton, Hursley, Farley, &c. Extremely common on the high downs along the London and Portsmouth road. Very frequent in Froxfield Hangers and other elevated and steep woods about Petersfield, with its common associate the beech. Very large trees, some evidently of high antiquity, occur in the woods and chalky slopes about Hambledon. Extremely frequent in most of the northern parts of the county, but I think much less so, if not decidedly rare, in the south-western part, in the New Forest, and Christchurch hundreds. The yew is a tree so frequent as to be a beautiful and distinguishing feature in the upland scenery of Hants, and some of the adjacent counties, as Sussex, Surrey and Wilts, its deep green, nearly black foliage finely contrasting with the brighter verdure of the beech, oak, and other deciduous trees, whilst in the picturesque form of its wide-spreading, depressed head, and short, gnarled, sturdy, cinnamon-red trunk, it may vie with the cedar of Lebanon itself. The yew is commonly seen with us as single trees, irregularly dotting the landscape, sprinkled over the open downs, or rising amid the hedge-rows or from the precipitous face of some hanging wood, but it occasionally forms groves by itself of small extent, the most remarkable of which that I am acquainted with is the yew wood at Kingley Bottom, near Chichester, much resorted to in the summer by parties of pleasure for its picturesque beauty and singularity. The yews on our downs and in the woods are mostly permitted to flourish unscathed by the axe, notwithstanding the value of the timber to the cabinet maker, and hence many noble specimens may be seen in the wild state, whilst on the main land of the county there is hardly a parish church of ancient date without its venerable yew in front of the door or porch, some of which churchyard trees are of extreme age and colossal dimensions. The great yew in Selborne churchyard, one by no means of very unusual size, was found to measure a year or two back 24½ feet in circumference at four feet from the ground. The very ancient yew in the churchyard of South Hayling, in Hayling Island, is, to the best of my recollection, a still larger tree than the one at Selborne, and doubtless others may be found in the county exceeding both these in dimensions. It is not a little remarkable, that whilst we find a yew planted and religiously preserved in front of nearly every ancient parish church in the county, I cannot call to mind the existence of this tree in any one of the churchyards belonging to the thirty parishes into which the Isle of Wight is divided. The antiquarian reader may possibly be able to account for this fact.

Juniperus communis. On dry hilly places, chalk downs, also in woods and copses; frequent in various parts of the county, but scarcely wild in the Isle of Wight. I found, March 20th, 1845, a solitary, very dwarf bush of the common juniper on the slope of the down above Nunwell, which, like the yew it accompanies, may possibly be native there, but until discovered elsewhere in greater quantity I do not feel justified in considering it as indigenous to the island on the strength of a single specimen. In Bordean Hanger and about Bordean Hill, where I have found this shrub rising to ten or twelve feet on the chalky slopes. Common on the downs about Petersfield, on Oxenbourne Down, &c. About the Farley (Horse) monument, in Parnell's or Parnholt Wood, and in most woods in that vicinity. Abundant in the higher, more open parts of Froxfield Hangers, and in woods at Hambledon. Plentiful at Highclere, in the park, on Beacon Hill and chalk downs about it. Popham Beacon, near Andover Road station, abundantly; Dr. T. Bell Salter! On Abbotston Down; Mr. J. Forder!!! I find it profusely on that beautiful elevated tract, along with large bushes of Rhamnus catharticus, Ligustrum vulgare, &c. Warnford; Rev. E. M. Sladen. On the down at Up Hurstbourne; Mr. Wm. Whale. On Danesbury Hill, near Testcombe Bridge, and Forest of Bere; *Id.* Unquestionably in innumerable other places in the county. The absence of this plant and the yew from the Isle of Wight, abounding, as it does, with tracts perfectly similar to those of the mainland, so productive of both these trees, is a singular feature in its flora.

‡*Pinus sylvestris.* Naturalized extensively in the south-west of the county, and probably in other parts, from plantations, chiefly on sandy or boggy heaths and moors. In plantations of immense extent about Ringwood, and betwixt Poole and Christchurch, as at Bournemouth, over tens of thousands of acres of moor, heath and bog, so as perfectly to present the aspect of the pine forests of Scotland. The species now maintains itself by self-sown seeds, which come up abundantly everywhere, even in the wettest morasses, and are gradually spreading the trees over the county, so that were the plantations to be left to themselves, and the original firs allowed to die out, the existence of the species would be perpetuated by purely natural means. It seems therefore absurd any longer to exclude the Scoth fir from the catalogue of Hampshire plants, as, although unquestionably intro-

duced at the beginning, the tree is as completely naturalized as any aboriginal of the county, fully as much so as are those species to which we never hesitate assigning a place in our general and local floras, as Acer Pseudo-platanus, for example. Besides in the enrolment of the Scotch fir amongst the species of our existing flora, we are perhaps only reinstating a primæval but extinct inhabitant of South Britain in what was once probably its native soil, as North Britain indisputably is at the present day; since I believe trunks and cones of this species have been dug up in the bogs of the south of England, as well as in those of Ireland, the vestiges of anciently existing pine forests.

Pinus Pinaster, Ait.? *P. maritima*, D. C.? Naturalized abundantly with P. sylvestris in the dry, sandy soil of Bournmouth, and on the turfy heaths and peaty, boggy moors betwixt Christchurch and Poole. The immediate vicinity of Bournmouth is at this time a perfect pine forest, both species forming in some places on the crests of the sandy cliffs above the beach, low, dense thickets, in others rising into groves of taller trees, exactly recalling to mind the natural pine woods of the European and American continents. There is little doubt that if left to themselves these two trees will establish themselves throughout the heath district of the Poole basin, as it is not only in the immediate vicinity of the original plantations that the species occur spontaneously, but they are beginning to dot the moorlands and bogs with vigorous young pines of both sorts at wider distances from their artificial places of growth. The cones of the pinasters when ripe discharge their seeds elastically with great force, and the seedlings that spring from them are called by the woodman at Bourne "self-setters." The wood, they say, of P. Pinaster is inferior to that of the Scotch fir, which in this part of England is used only for temporary railing, fencing, and other coarse purposes. With Mr. Woods (Phytol. iii. p. 261) I do not see how a place can be consistently refused to P. sylvestris and P. Pinaster, whilst many other plants, even less perfectly naturalized, are admitted without hesitation into our British flora. The plantations are of nearly fifty years standing, so that there has been time enough to test the self-propagating and self-preserving power of both these pines. I am not sure that I am correct in quoting P. maritima, *D. C.*, as a synonym of P. Pinaster, *Ait.;* if I am, the latter must doubtless have a prior claim to adoption; neither am I certain that our pinaster and the P. maritima so abundant in the Landes, or sandy maritime plains betwixt Bordeaux and Bayonne, are the same species, although they appear to me from recollection of the latter to be identical, but the different species of Pinus are very difficult to recognize apart from each other, and there are several long-leaved pines in Europe and America inhabiting the low grounds closely allied to one another. I have heard or read that the maritime pine of the Landes is not indigenous there, but was planted in the first instance for the purpose of binding the loose sand of that singular region, where the peasantry walk about upon stilts, and has since become naturalized. In this part of the south coast we are on the meridian of the Landes, and assuming our pinaster and the P. maritima of Bordeaux to be identical, we may well conceive it possible for the tree to be so far able to accommodate itself to a difference of latitude amounting to about six degrees, as to establish itself spontaneously here as there, when introduced into a soil equally adapted to its nature.

Paris quadrifolia. In shady woods and copses; not found in the Isle of Wight, but apparently of frequent occurrence in mainland Hants, at least on the chalk and in the interior of the county; seemingly rare, if found at all, near the sea, which is perhaps the cause of its absence from the island, the climate of which is too maritime for this rather continental or Germanic plant. Wood at Bordean Hill; the Misses Sibley!!! Langrish; Miss G. E. Kilderbee!!! Parnell or Parnholt Wood, near Farley, a few miles from Winton; Miss A. Yonge and Dr. A. D. White!!! Abundantly in woods on the chalk, as about West Meon, Winchester, &c.; Mr. Wm. Pamplin. Wherwell Wood, near Andover; Mr. Wm. Whale! Wonston; Miss L. Legge! Henwood, W. Meon, and wood near Rotherfield; Miss L. Sibley. In the Church-litten Coppice, Selborne; Rev. G. White. In the sloping wood nearly facing the church, at Appleshaw, in which Lonicera Caprifolium grows; W. A. B. Very many more stations doubtless exist for the Paris besides these just enumerated. With us this plant rather affects the uplands than the lower flat country, and where it sometimes has the wild Columbine (*Aquilegia vulgaris*) for its associate in the more elevated of its localities.

Tamus communis. In woods, groves, thickets, hedges and borders of fields, extremely common throughout the county. Abundant in the Isle of Wight, and in nearly all parts of mainland Hants, but I think of diminished frequency in the south-western or New-Forest district, as about Lymington, Lyndhurst, Ringwood, Christchurch, &c., owing, perhaps, to the nature of the soil, which is chiefly the diluvial of the Poole basin, on which some other species, as Acer campestre and Bryonia dioica become comparatively unfrequent.* Assuredly one of the most beautiful and graceful of British plants, looking like some tender native of a warmer clime that has wandered to our less genial shores courting their colder breezes. Most of the devotees of Flora confess to an exclusive partiality for some one production of her creative hand indigenous to the country of their birth. Linnæus was fascinated with the symmetry (mother of all beauty as he styles it) ever present to his vivid perception of loveliness in form, in the blossoms of the little northern Trientalis, that "flos gratissimus" whose praises he has celebrated (I had nearly said sung) in his truly poetical work the 'Lapland Flora.'† Smith describes the Water Avens (*Geum rivale*) in terms of glowing admiration, which lead me to conclude that pretty plant to have been a prime favourite with the amiable editor of 'English Botany': and if it be allowable in the author of these humble Notes to avow a predilection felt by such master minds for one native plant above the rest, he would point to the Tamus as the object of his especial preference. No other indigenous vegetable comes up, I think, in elegance of habit to the Black Bryony, as it displays itself on many a tall hedge-row, or along the margin of some way-side thicket; its twining stems concealed beneath the closely overlapping, prone directed or shelving, brightly varnished leaves of firm texture and translucent green, their long, tapering points, wavy margins and finely rounded bases, seeming to undulate and curl and glide upon each other with simulated motion, as of a swift and eddying stream descending in an easy, graceful curve from its source, and widening by degrees along its downward course. From the great beauty of the broad, rich green foliage, which, being slightly fleshy or succulent, has a peculiarly cool, refreshing effect, few plants are better suited for trellis-work or covering arbours than Tamus communis, as it climbs to a considerable length, and affords a good shade. The staminate plant, as being more elegant in flower, should be chosen in preference to the pistillate, or both grown together for variety, and were it not a native, and therefore despised and disregarded, it would probably have been long since as much a favourite in British gardens as its near relative the Hottentot Bread (*Testudinaria elephantipes*, *Tamus elephant.* L'Her.) of the Cape, is in our conservatories, since it is quite as handsome as that, with the additional advantage of being perfectly hardy. I once recollect to have seen in America, in a part of that continent where the species was *not* found wild, our common Bittersweet (*Solanum Dulcamara*) used for covering a dead wall, and very gracefully it fulfilled the commission imposed on it by the planter. Were this species not to be seen in almost every hedge, and had it but come to us like the Boxthorn (*Lycium barbarum*), absurdly called Tea tree, from a foreign land, it would have supplanted that formal shrub, to which it is so closely allied, by the greater freedom of its growth and much handsomer foliage.

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* In this part of England the Tamus is commonly called Bryony, sometimes Isle-of-Wight Vine, and confounded with the true and almost equally abundant plant of that name, Bryonia dioica, whilst to many it is a nameless, though familiar object. Its pretty designation of Our Lady's Seal, given it in a more poetic age, has become universally obsolete except in books, and was perhaps never a vernacular one in this land, nor can we, in these matter-of-fact, prosaic times, hope to see that name revived, or a bard arise to give it currency in song. Possessing neither fragrance nor the florid charm of colouring, the simplicity of its starry flowers and the grace and elegance of its polished foliage, unrivalled by that of any other native plant, can win the admiration of such alone for whom form has equal or superior attractions over scent or brilliancy of hue. My friend the dowager Lady Erskine tells me that the Black Bryony is called in Wales Afal Adda, that is, serpent's meat, and that it is a prevalent idea in the principality that those reptiles are always lurking near the spot where the plant grows.

† "Nescio, quænam gratia floris (Trient. europ.) adeo percellat oculos, ut fere effascinare videatur visu contemplatorem suum; forte a symmetria, pulchritudinis omnis matre!" Fl. Lappon. p. 104.

The order Tamaceæ is quite superfluous, not admissible even as a sub-order or tribe (Tameæ) of Dioscoreaceæ. Tamus is in fact an intermediate genus connecting the latter order with Smilaceæ, but more closely allied to the yams than to the Sarsaparillas, differing from Dioscorea chiefly in its baccate fruit, and globose, not compressed seeds destitute of a wing or border. But Testudinaria, which has the most intimate relation possible to Tamus, and was even once referred to that genus, has the fructification of Dioscorea; and the pulpy pericarp of Tamus covers a thin membranous capsule of three cells with, imperfect dissepiments from the middle of each cell, quite unconnected, or but very slightly attached to the pericarp, from which it may readily be squeezed out entire when ripe, or dissected out when green. Our Tamus might indeed be properly called wild or English yam (for to the Bryony it has no botanical relation whatever), so much does it resemble that tropical esculent in its root, leaves, and general structure, and I have every reason to believe in its edible and nutritive qualities were they fairly put to the test of experiment. The root is very large and thick, consisting, like the yam, of irregular fusiform or digitate tubers, beset with wiry fibres; externally light brown or ash-gray and wrinkled, very white, soft and fleshy within, as easily sliced as a turnip, and abounding with an acrid, clammy juice. Apart from this acrimony, which cannot compare for intensity with that of Cassava and the various esculent Araceæ, the root has neither bitterness nor any other unpleasant taste, nor, though so large and enduring, is it at all tough, woody or stringy in texture, being apparently purely farinaceous, and composed chiefly of starch, with probably a portion of gluten. I have the best reason for believing that were the roots dressed like yams, by roasting them in hot wood-ashes a sufficient time to dissipate their acrimony, as in the latter, they would prove no way inferior to that vegetable.* Had I the facilities for trying the experiment I should certainly do so, but partial failures must be anticipated before the exact degree and duration of heat to be applied could be ascertained, and the experience necessary to ensure uniform success in the operation acquired. That there is reason in roasting a yam as well as an egg there can be no doubt, and we all know how much the simple process of boiling potatoes demands for its successful issue some exercise of man's noblest attribute. The tubers of the Tamus dug up from the hedge-rows in autumn, when the berries are ripening, would probably furnish as good yams as if cultivated expressly for use, because in the West Indies the "ruinate yams," or those that have become wild on old forsaken or ruined plantations, are esteemed the best.

The beautiful large scarlet berries, hanging in festoons on the bushes, ripen too late (with the decaying leaves) to add much to the ornamental aspect of the plant in autumn, yet are not without their use. These berries abound with a nearly insipid, watery juice, which leaves a scarcely perceptible sense of acrimony behind on the tongue and fauces when swallowed; but on being rubbed in a fresh state upon any sensible part of the surface, as the back of the hand, they raise, in less than a quarter of an hour, a faint cuticular eruption, attended with a slight itching and pricking, that soon subsides, leaving the part as before. Hence an embrocation prepared by steeping "murrain berries," as they are here called, in gin or brandy, is a sovereign remedy with the peasantry of the island for chilblains, and I believe a most efficacious one; the ripe berries alone, without the spirit, will answer nearly as well, but the latter is employed chiefly to preserve them in for use during the winter. Mr. Borrer lately told me that when a boy he became aware of the rubefacient property of black bryony berries, but had not heard of their application for the infantine complaint above mentioned.

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* On turning over several old authors to learn what may have been said by them on the subject, I find by reference to Matthiolus that my idea of converting Black Bryony roots into home-grown yams is not altogether a new one. That learned commentator on Dioscorides tells us, on the authority of one Martin Guidotti, a perfumer (myropola) of Trent, and a most diligent herbalist, that the roots of Tamus roasted in hot ashes are no contemptible dish (haud ingratum sit edulium), Matth. edit. Valgr. 1565, p. 1287. It is, however, but fair to add that Guidotti attributes medical virtues (probably imaginary) to these yams, which would make them unfit food for some temperaments. It is well known that the young shoots of the Black Bryony when they first appear above ground in the spring are eaten in some countries like asparagus, although by no means devoid of active properties, which it requires long boiling to render inert; why, therefore, should the root be less susceptible of conversion into good and wholesome aliment? Matthiolus's figure of his Vitis nigra is one of Smilax aspera, but his description applies to Tamus, which was the true Vitis nigra of ancient authors.

The geographical distribution of Tamus communis in this country and on the continent has something worthy of remark. From the contiguous parts of Asia it advances through Europe in a line gradually ascending from south-east to north-west, appearing in the Crimea, and keeping nearly on the parallel of 45°—46°, through Transylvania and the southernmost provinces of Austria into Switzerland, where it rises northward, following the course of the Rhine into Germany as far as Carlsruhe and Strasburg, thence spreading over the whole of France, it reaches Belgium, where, however, it is rare and local; then crossing the Channel it disperses itself throughout England nearly to its northernmost extremity, advancing to 55½° of latitude, many degrees beyond its polar limits on the continent, and abounding over all the southern and midland counties in equal proportion on the eastern and western sides of the island. Yet with this marked tendency to a north-west progression, and with as much of the Atlantic as the Germanic distribution, it is not a little singular that the Black Bryony should never have been found passing over into either Scotland or Ireland, although these countries are both within its limitrophe parallels in England. With such strongly-marked western distribution, one might in theory have confidently predicated its occurrence in nearly every part of the sister island, and have reasonably looked for it in the Scottish counties of Dumfries, Kirkcudbright and Wigtown, where it may yet possibly be discovered, since these counties all lie due west of its natural localities in Durham and Northumberland. As Tamus communis belongs to a decidedly southern and indeed mostly tropical natural order, we may plausibly account for the great deflexion of its line of distribution in a south-easterly course, by supposing the root unable to resist the winters of eastern Europe above a certain parallel, whilst its sudden and total suppression westward in Scotland and Ireland may be owing to its not finding there the requisite degree of summer heat for its spontaneous maintenance. The common Butcher's-broom (*Ruscus aculeatus*) has a very similar distribution with Tamus, and like it, is not a species of even central Europe, excepting towards the west of our continent, where the winters are not too rigorous for it. Like Tamus, it fails totally or is doubtfully wild in Ireland, but advances a little beyond the former towards the north-west, being found in several parts of Scotland.

After all, should not Tamus communis have the * or at least the † appended to it? I wonder its claim has never before been called in question! We have just seen that it is quite a southern plant, unknown over the greater part of Europe under British parallels; of eminently exotic aspect and relationship, and has no one well ascertained British or Saxon name, for that of Our Lady's Seal must have been given it in catholic times, and as before remarked, seems never to have been its popular one with us; indeed Parkinson expressly tells it was only called so abroad by the apothecaries of France, Italy and Germany.* As to the name of Bryony, which it shares with the true plant so denominated, that word is altogether Greek, and therefore quite sufficient to implicate both species in the suspicion of foreign descent. Moreover, both Tamus and Bryonia are known solely as "wild vines" to a great proportion of our rustic population; a phrase very redolent this of the sunny south from whence it *must* have come with the plants themselves; nay, further, the Tamus is sometimes called here Black Vine, in contradistinction to the Bryonia, which is occasionally termed White Vine, from its paler colour. Here we actually have the genuine classical names of antiquity for the Tamus, the vitis nigra and *αμπελος μελαινα* of the Greeks and Romans, done into English for the benefit of country bumpkins; what more can be needed to prove both the plants foreigners? No, depend upon it that Tamus, like the Arbutus, the Hop, the Cherry, the Lime and the Beech, is a convicted alien; who knows but it might have been introduced by the *monks* in the train of the pious missionary St. Augustine, to rub their chilblains with, a complaint to which those holy fathers were probably martyrs, if to nothing worse, for the first few winters after their arrival on our heathenish shores in the sixth century.*

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* Theatrum Bot. pp. 180, 181.

In the garden at St. John's, Ryde, is a plant of Smilax aspera, which was originally found by Mr. John Laurence, the gardener, growing under one of the ruined walls of Quarr Abbey, about a mile from the town. I presume it must have been set there by some one wishing to try whether this native of south and south-eastern Europe could be naturalized in the island, and acquit the good Cistercians in this instance at all events of having had anything to do with its introduction within their ancient precincts.

Hydrocharis Morsus-ranæ. In pools, ditches, drains, and other still water; apparently rare, or at least not common in Hants, although probably much more frequent than I have the means of showing it to be at present. Not indigenous to the Isle of Wight, but abundant in a naturalized state in a small pool at Barretts, about two miles from Ryde, on the Brading road, introduced there a few years since with Stratiotes aloides and Villarsia nymphæoides by Dr. Salter!!! On the shallow margin of Sowley Pond, at its south-west end, in two places, September 26th, 1849. "Grows, I believe, at Christchurch, in the water bordering the lower road to Ringwood;" Mr. James Hussey in litt.!!! Plentiful at Sopley on the Avon; Pulteney's Cat. of the rarer Plants of Dorset. I found it in October last extremely abundant in ditches and pools on the road out of Christchurch towards Sopley and Ringwood, beginning a short distance from Christchurch, and continuing nearly to Winkton; some of the ditches and drains in that low-lying and swampy district being quite filled with it. I may take this occasion to mention that I found Stellaria glauca (a plant I had down on hearsay only in the Hampshire catalogue till then), growing abundantly in marshy ground on the same road, on the left hand going towards Sopley, a short mile out of Christchurch, and still very partially in flower, October 6th, 1849. I have never remarked the Frog-bit in any other quarter of Hants, but can scarcely doubt of its occurrence in various parts of the county, as it is frequent in Sussex in the levels, on low grounds along the coast, as at Eastbourne, Pevensey, Arundel, &c.

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* Under the heads of Ligustrum and Taxus I should have been tempted, had I known them at the time, to have inserted the two following passages from Pulteney's Catalogue of the rarer Plants of Dorsetshire in his remarks on those species, as further exemplifying the ridiculous tendency to doubt the native origin of almost every tree and shrub of British growth, which it has been my unceasing endeavour in these "Notes" to expose and combat in each instance that has presented itself for discussion. In his remarks on the privet, Pulteney shows that he himself was not uninfected with the gratuitous scepticism so often animadverted on in these contributions, for he observes, "From the oriental (*i. e.* specious or exotic) habit of this shrub, such as indulge in speculations relating to the distinction between the *native* and *naturalized* vegetables of England, might be allowed to suppose that the Privet was introduced into this island during the crusades, or at some remoter period of time." Admirable supposition! and quite on a par with that which would impute to our Holly a Japanese origin (Phytol. ii. p. 518, note). But there is no end to such vagaries, venial, perhaps, in Pulteney's time, but inexcusable in botanists of our own day, some of whom, nevertheless, hold opinions quite as absurd and gratuitous on the same subject. When he comes to speak of the Yew, however, Pulteney defends its claim to nativity against his fellow sceptics. "The title of this tree to the appellation of a *native* has been much disputed. Such as have denied it would probably hesitate in their opinion on seeing the scattered and unequivocal manner in which it is seen growing in Dorset, Wilts and Hants."

The curious Water Aloe or Water Soldier (*Stratiotes aloides*) may be found in Hants, although for the most part restricted in its genuine wild state to the easternmost midland counties of England. It is naturalized in this island, as above mentioned, and it is only a wonder it is not more generally dispersed over the realm, since, when thrown into almost any pond or ditch, it seldom fails to take entire possession, hardly permitting a rival to flourish in peace by its side.

† ? *Udora canadensis* (*Anacharis Alsinastrum*, Bab. Man.). In rivers, streams, snd stagnant waters; very rare, and possibly not indigenous to the only Hampshire station yet known for this plant. In an artificial piece of water in Leigh Park, near Havant, the seat of Sir George Staunton, Bart.; Mr. Borrer, 1847 !! Mr. B. informs me that the species was remarked by the gardener at Leigh Park only within a year or two of the above date, and after the introduction to the pond of some American aquatics, with which it was concluded to have been conveyed thither. The same year, a very similar, if not identical plant, was discovered growing abundantly in the reservoirs at Foxton Locks, near Market Harborough, Leicestershire, by Miss Kirby, and since then it has been detected in a multitude of most unexceptionable localities (rivers and streams) in England and Scotland, placing its indigenous origin beyond all doubt; although as usual its claim to nativity was immediately questioned, it must be allowed with far more reason than is commonly brought forward in excuse for scepticism on like occasions. For being known exclusively till that time as a transatlantic plant (unless the Lithuanian species be the same), there was ground for demurring to its reception amongst our true natives, so long as the stations it was found in partook of an

artificial character; but now that it is ascertained to inhabit abundantly many of our natural waters, continuance of disbelief in its aboriginality would be ridiculous. Nevertheless, our only known Hampshire station is still open to suspicion in no trifling degree, inasmuch as the circumstances of the plant's appearance at Leigh Park strongly favours the probability of its having been imported with Nymphæa odorata direct from America. I say a probability only, because there is no direct proof of its introduction to the pond at Leigh Park beyond its having been unnoticed previous to planting the said aquatics, for I understand the pond in which it grows was an artificial enlargement merely of a natural spring or basin, in which the Udora may have pre-existed and have escaped observation, as it must have done in so many of its subsequently detected habitats. I am indebted to my friend Dr. T. Bell Salter for living specimens from Leigh Park, but these have not yet flowered with me, nor have I visited the station, deterred, as I was, from doing so, by the impression that the Udora had no real claim to insertion in the Hampshire flora. The subsequent discovery of this plant in so many distant and truly natural localities in England and Scotland has considerably lessened my unwillingness to receive it into the Hampshire Catalogue, and has induced me no longer to withhold from it the benefit of the doubt, which may fairly be raised as well in its favour as against it. But this reluctance to admit its claim to enrolment amongst our county plants, has hitherto prevented me from examining its characters and ascertaining its undoubted identity with the American Udora canadensis. Yet feeling pretty well satisfied that this is the case, I here enter it provisionally as such, until future observations on the Leigh Park plant by myself or others shall confirm or disprove the fact. The very highly curious and closely-related Vallisneria spiralis, found in similar places with our Udora nearly throughout Europe, will one day probably occupy a place in the British Flora, together with Najas marina and Caulinia fragilis, plants allied to the two former in habit, but belonging to another, though not very widely remote natural order.

Orchis Morio. In dry meadows and short turfy or heathy pastures; very common throughout the county and Isle of Wight, being, in fact, the most abundant of the Orchidaceæ in spring and early summer with us. Fields at Quarr Abbey and elsewhere about Ryde. Abundant about Cowes, Newport, Yarmouth, and most other parts of the island. Occurs here occasionally, though rarely, with pure white flowers; and in May, 1845, I noticed in a meadow betwixt Pieslegs and Rosemary Lane Copses, the following varieties: *α*. Flowers delicate pink, verging on flesh red. *β*. Lip white, destitute of spots; sepals and superior petals violet without, greenish white within. *γ*. Flowers violet; disk of lip whitish, shading off into violet on the margin, its centre thickly dotted. This is certainly one of the most beautiful of British Orchises, whether we consider the soft lustre of its deep purple blossoms, emulating the richest velvet, or the diversity of shades and variegated colours they assume. The character of having single nerved bracts, which is made the foundation for a sectional division in the Manual, applies only to the highest in the spike, if even always to them, for the lower and middle bracts in all the specimens of O. Morio I have examined, are from 3 to 5 or even 7-nerved, but the lateral nerves are often obscure, at least in the living plant, for in the dried state they are extremely conspicuous.

Orchis mascula. Very common in most parts of the county and Isle of Wight in moist woods, meadows, pastures, and other damp and shaded situations. Var. *β*. Flowers pure white. I have gathered it at St. John's and near Appuldurcombe. Near Ryde; Miss Lucas!!! Near Westridge; Mr. Robert Hudson! The long spikes of bright purple flowers and finely spotted leaves of the "Kettlecases," by which unintelligible name they are called in this island, are hailed with delight by young and old in April's fickle prime,

"When wheat is green and hawthorn buds appear."

This species begins to flower a little in advance of the last, which is always in blossom with us in the earlier half of May, and usually partially so at the close of April. O. fusca, militaris and macra are all or severally not unlikely to enrich the Hampshire Flora. The first has, according to Mr. Watson, been found by the Rev. G. E. Smith in west Sussex, the two last occur in the conterminous county of Berks and the not much more distant ones of Oxon and Bucks; hence these species may be expected along our northern and eastern boundary.

——— *ustulata.* On dry chalky hills, downs, banks and pastures; mostly in elevated situations, not very frequent, though I believe widely diffused over the county. Tolerably abundant on St. Boniface Down, between Ventnor and the Pulpit Rock, and in chalky meadows at Bonchurch occasionally. Steephill; Mr. Albert Hamborough! Freshwater, near the cliff (on High Down, &c.); Mr.

Dawson Turner in Snooke's Fl. Vect. !!![*] Plentiful on the sloping sides of the valley by Calbourne New Barn; the late Lady Simeon!!! Sloping pasture at Apes Down; Mr. Charles D. Snooke. Littleton or Flower Down, near Winton; Rev. Messrs. Garnier and Poulter in Hamp. Repos. and Dr. A. D. White!!! Pinks Hill (near Warnford); Rev. E. M. Sladen. Bordean; Miss L. Sibley. Hardly to be met with in the lower and level country. The name of ustulata is very appropriate to the burned or singed aspect given to the summit of the spike by the purple brown colour of the flower-buds.

OBS. *Orchis laxiflora*, a species common in the Channel Islands and on the continent of Europe, will probably ere long be discovered in Britain.[†] Dr. Salter found June 5th, 1845, at Spring Vale, near Ryde, a variety of O. Morio "with the upper (lateral) sepals reflexed in the advanced flowers." The specimens he kindly gave me are taller than is usual in this species, and have many (3—5) nerved bracts, but so, we have seen, has O. Morio, from which they differ in no other particular than that above stated. I should guess the figure of O. laxiflora in E. B. to be an indifferent one, and it looks much as if drawn and coloured from a dried specimen.

——— *maculata.* In dry or damp, and even wet meadows, woods, thickets, pastures, and on heaths; abundantly throughout Hants. Assuredly very closely allied to O. latifolia, but distinguished by its (always?) solid, not hollow stem,[‡] pyramidal, somewhat acute spike, by the much smaller and shorter bracts, more slender and pointed spur, and by the broader and shorter lip, the central lobe of which is about equal to the two lateral lobes, that are notched on their margins, and usually, but not invariably, flat or spreading, sometimes deflexed. The plant is commonly shorter and far less robust than O. latifolia, but is extremely variable in the colour and markings of the flowers and in the form and proportions of the lip. "A variety with blood-red flowers was found in this island by the Rev. R. Price, of Lyminge, Kent, and is now growing in his garden." Rev. G. E. Smith (in litt.).

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[*] Several stations for plants were communicated to Mr. S. by that accomplished botanist and antiquary.

[†] Mr. Borrer informs me that O. palustris is reported to have occurred in the Isle of Wight; what this may be I do not know, since I am told it is not the same thing as O. laxiflora, to which the O. palustris of Jacquin is referred as a synonym in Steudel's Nomenclator, in which work no other species is mentioned bearing the latter name.

[‡] The cavity in the stem is filled up with loose cellular tissue, but is not truly solid.

Orchis latifolia. In low, damp pastures, wet or boggy meadows and thickets, rarely in dry and elevated situations; pretty frequent, though much less common than the last. In Sandown marshes, near Shanklin and Appuldurcombe. Very fine at Colwell Bay; common in meadows at Thorley and in boggy ground below Calbourne Mill. Abundant in boggy meadows at Easton, Freshwater Gate. Common in the great fir and beech plantation on the down above Westover. Wet meadows about Newchurch, &c. Wet meadow betwixt West Mill and Carisbrook; Mr. Charles D. Snooke. Var. *β. incarnata*, Bab. Man. p. 310. Boggy ground by the Wilderness, June, 1844. I happen not to have made any notes of the occurrence of this species in mainland Hants, but feel convinced of having seen it there, and cannot suppose it to be less common in that part of the county than in this or in other parts of England. Distinguished from O. maculata by its much stouter habit, hollow stem, cylindrical and rather obtuse than acute spike of flowers, by the much smaller middle segment of the 3-lobed lip, which is distinctly produced beyond the two lateral, rounded, nearly entire or slightly crenate lobes, that are deflexed, not plane or spreading, as in the other; by the less attenuated, subcylindrical or conical, bluntish spur, always much shorter than the germen, and lastly, by the much larger, longer, more conspicuous bracts. Leaves not usually spotted; flowers here sometimes white.

——— *pyramidalis.* In dry, and particularly hilly meadows, pastures, and in grassy woods on the chalk, as also on argillaceous soils containing any notable proportion of calcareous earth; growing at a lower elevation than O. ustulata, even at the sea-level, but more commonly in the higher grounds. In many parts of the Isle of Wight abundantly. Not common about Ryde. Plentiful in Binstead stonepits; and in the fields by the road from that village to Ryde, sparingly. Plentiful in grass fields at Egypt, by West Cowes (the extremest north point of the island), and on the slipped land along the shore to the westward of Cowes. More common on the chalk downs than elsewhere. Abundant on the down (High Down) W. of Freshwater Gate; near Compton farm and near Yarmouth. Down above the Culver Cliff. Abundant on Carisbrooke Castle Hill, but of small size. Common on grassy slopes at Ventnor. In Calbourne New Barn Hummet, and in the great fir and beech wood along the flank of the down above Westover. On Bembridge Down and in various other places. Some plants gathered in the chalk-pit opposite the Mountjoy bastion (Carisbrook Castle) had the protuberances of the lip much elongated and leaf-like, July 18th, 1849; Mr. Charles D. Snooke (in litt.). I presume this species to be frequent over the county, but I have few data for showing its distribution on the main land, not happening to have noticed it there myself, excepting, if I remember right, about Bordean Hill. Otterbourne; Miss A. M. Yonge. Bordean; Miss L. Sibley, and (with white flowers) Rev. Messrs. Garnier and Poulter in Hamp. Repos. Maindell chalk-pit (Fareham); Mr. W. L. Notcutt. The flowers of this beautiful species vary with us from the deepest rose red to white.

The Lizard Orchis (*Satyrium hircinum*), it is far from improbable may eventually be found in Hants, since it grows in the adjoining county of Surrey, if not now extirpated by the rapacity of botanical collectors and the cupidity of orchis-rearing nursery-men. In our more retired and less explored county it might long vegetate unnoticed and undisturbed, and should be looked for on dry, bushy, chalky banks and hills. It has lately been found (a single specimen I believe only) at Great Glenham, in Suffolk, and although not indicated as a native of Ireland in the Manual, is mentioned as such in the 'Plantæ Rariores Hiberniæ' of Dr. Wade; and when last in Dublin Mr. D. Moore, of the Glasnevin Botanic Garden, told me he had himself met with it in that country, and communicated the rediscovery of this rare species to Dr. J. T. Mackay, in whose 'Flora Hibernica,' however, it does not appear. It is clear, therefore, that O. hircina has a very wide distribution in Britain, but is extremely local, and usually very sporadic; and since we are here but little removed from the part of England where it occurs with greatest frequency, the prospect is the fairer of ultimately detecting it within the limits of this county.

Gymnadenia conopsea. In dry heathy or chalky pastures, or in wet, peaty, boggy or clayey ground, not common, though found in several parts of the county and Isle of Wight. Extremely fine and plentiful on very wet banks of slipped clay in Colwell Bay, Freshwater, and in boggy ground at the upper end of Colwell Heath; first remarked there by the Rev. G. E. Smith, who justly observes that the plant has a mixed odour of the hyacinth with that more proper to the species, which much resembles the fragrance of the clove pink. On Freshwater Down; common, 1841. On chalky slopes at Apes Down, June, 1846. Bank opposite Madeira Villa, Ventnor; Miss Hadfield!! (it grows also in the Chicken pits and elsewhere in that place). Carisbrook Castle, S. and E. moats and ramparts, and heath between Staplers and Briddlesford; Mr. Charles D. Snooke. It seems not less frequent on mainland Hants. About Petersfield, West Meon, &c., not rare; Miss L. Sibley!!! Otterbourne; Miss A. M. Yonge (in litt.). Plantation behind Wheely Cottage (near Warnford); Oliver's Battery, near Winton; Rev. E. M. Sladen. Abundant on Littleton or Flower Down, near Winton; Dr. A. D. White. Probably in very many other parts of the county; most likely frequent in the forest tracts, as I think it is in Sussex. The plant as it grows on bog at Colwell is often very large, eighteen to twenty inches high or upwards, with very densely-flowered spikes, and leaves an inch or nearly so in width, but sometimes in equally wet soil extremely narrow and erect. This form may possibly be the G. densiflora of Dietrich's 'Flora Marchica,' p. 164, whilst another variety with excessively narrow leaves, and a somewhat lax or open spike, and of humbler stature, growing on dry chalk soil at Ventnor, may be what he intends by the true G. conopsea of that work, and which I supposed might prove identical with the true G. odoratissima, *Rich.* (Orchis odoratissima, *Linn.*), but that species, if it be not a mere variety of G. conopsea, is distinguished by its much shorter spur, and narrower, cylindrical, not conical spikes of very minute flowers. The delightful fragrance of this plant is most powerful towards evening, and in those plants that grow in damp situations, for on dry soils it is nearly inodorous. G. albida (Habenaria albida, *R. Br.*) is reported in 'Cybele Britannica' as found in Hants on the authority of the Rev. S. Palmer, and has indubitably occurred in one locality in Sussex.* I have never seen Hampshire specimens of this rather northern than southern and mountain-loving species, but there is good ground for hoping it will some day reward the investigator of our county flora on hilly heaths. The curious Green Man Orchis (*Aceras anthropophora*) is a still more likely plant to occur, and I have indeed heard from Miss E. Sibley that it has been found at East Woodhay, in the north of the county, which, although on unconfirmed and anonymous authority, is very probably correct, seeing that it grows abundantly in certain parts of Surrey and in Berks, and may therefore be expected with the greatest reason in such districts of Hants at least as adjoin on those two counties.

Habenaria viridis. In hilly, heathy and grassy pastures, or in low meadows; very rare in the Isle of Wight, and not at all common in the rest of the county. A single specimen picked in a rough pasture field at the end of the fir plantation by Long Lane, near Newport, 1841; Mr. R. G. Kirkpatrick! A second specimen gathered in June of the same year by Miss Woodroofe, of Calbourne, near the "high summer-house" at Swainston! both which examples I possess through the kindness of the finders, and are the only ones I have seen from this island, where it has not once occurred to myself in more than twelve years' investigation of its floral productions. On Beacon Hill, near Highclere, in tolerable plenty, and still in flower, August 9th, 1849. I have received it from Miss Lovell, 1848, gathered, I believe, at Catherington, near Clanfield! Searjeant's Meadow, Warnford; Mr. Vickery. Field by the Winchester road, near Cheriton; Miss L. Sibley. Flower Down, near Winton; Miss L. Legge! Near Lodge Bere Forest; Messrs. Garnier and Poulter in Hamp. Repos. A more frequent species in the north than in the south of England, but Mr. G. E. Smith tells me it is not uncommon in Sussex in damp meadows at the foot of the downs.

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* Jenner's Fl. of Tunbridge Wells, p. 45.

Habenaria bifolia. In woods, copses, and in open, heathy places; rare in the Isle of Wight, and not yet seen or received by me from mainland Hants, where it must doubtless grow in many of the forest districts, &c.*. In Stroud Wood, near Aldermoor, by Ryde, not sparingly, June 11th, 1838. Two specimens picked on Colwell Heath, June, 1841. In the former station it may, I believe, be found yearly in considerable plenty. Heath between Staplers and Briddlesford, near Newport; Mr. C. D. Snooke. This is rather a puzzling plant, about the value of which as a species apart from H. chlorantha I have ever entertained considerable doubt. It unquestionably presents some good and apparently permanent characters, and has long been distinguished by Ray and other of the earlier botanists at home and abroad from the larger and commoner H. chlorantha, yet I think the differences betwixt them are such as might be inferred to result from soil and situation. It must be allowed, however, that their distribution is different, H. bifolia being the plant of Sweden, Denmark, and other boreal countries of Europe, as is evident from the figures and descriptions of the northern botanists, whilst H. chlorantha inhabits central and southern Europe, and is infinitely more abundant in this part of England than the smaller species. The differences between them have been ably illustrated by Mr. Babington, in the 17th volume of the 'Linnean Transactions,' and in the Supplement to E. B., and who was the first to disentangle them from the neglect and confusion into which they had fallen in Britain, although sufficiently recognized on the continent. Besides the figure in E. B. Supplement, t. 2806, I may cite for H. bifolia that of Fl. Danica, ii. t. 235, as good, and the beautiful one of Mr. Curtis in 'British Entomology,' v. t. 233, as still better. The figures of H. (Platanthera) solstitialis, *Drejer*, Fl. Dan. fasc. xl. t. 20360, and t. 20361, are excellent representations of our H. bifolia.

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* Whether the H. bifolia of Mr. W. L. Notcutt's 'List of Fareham Plants' (Phytol. ii. p. 213) be this species or not, I am uncertain; if it be the true plant, then is Titchfield Common a mainland station, and a very likely one for the lesser Butterfly Orchis.

The great characteristic of th eplant before us is the parallelism of the anther-cells, more closely approximated at their base, than those of H. chlorantha at the summit of theirs; hence the flowers of H. bifolia are much narrower than in H. chlorantha, and far less handsome and conspicuous. The anther is shorter, the petals narrower, the two lateral connivent petals, with the lip, spur and summit of the anthers, are of a greenish or herbaceous colour, scarcely observable in the almost pure white flowers of H. chlorantha; the spur is more slender, filiform and cylindrical, being scarcely at all compressed as in H. chlorantha, neither is it sensibly enlarged or clavate at the extremity as is so remarkably the case in the latter, and is hardly thicker than a packthread throughout, besides which it is usually straighter, and often horizontally porrected as well as prone or deflexed. I observed in all my specimens of H. bifolia from Stroud Wood that the lateral sepals are simply spreading, and rather curved forwards or slightly connivent than reflexed, which is their general tendency in H. chlorantha when fully expanded. The scent of the lesser and greater Butterfly Orchis is highly and delicately fragrant, particularly towards evening and at night. To myself the odour is like that of the Tuberose (*Polianthes tuberosa*), to others like that of orange flowers or scented soap. It is to be regretted that the confusion in which the synonyms of these two presumed species were so long involved should have settled the name chlorantha (greenish yellow flower) upon the species the least meriting the appellation. The concluding remarks of Sir James Smith on Orchis bifolia in his 'English Flora' evince the very little attention he paid to our present plant even as a variety, distinctly noticed by so many of the older botanists.

Habenaria chlorantha. In moist open places in woods, thickets, groves, and on grassy slopes; very frequent in the Isle of Wight, particularly on stiff clay soils. Very common about Ryde, at St. John's, in Quarr Copse, woods at Sea Grove, the Priory, Westridge, &c. Abundant in the grounds at Norris Castle, and in Mrs. Goodwin's grounds at West Cowes. Woods and pastures about Combley, Duxmore, and all that vicinity, frequent. Woods on the west side of the Wootton River, at its mouth, plentifully. Common in woods about Swainston, Calbourne, Thorley and various other places. Having accidentally omitted to observe and record the stations for this species in mainland Hants, I can only state my belief that it is in all probability equally frequent there as in the island. Var. β. Flowers regular, without a spur. Grounds at Norris Castle, very rare. This beautiful and fragrant species is well distinguished from the last, by its generally greater height (often eighteen to twenty inches) and robustness; much larger and broader leaves, of a purer white; thicker, more compressed and somewhat club-shaped spur; and especially by the great divergence of the anther-cells, whose bases are so far apart, that were the apex of each cell produced till they met, a nearly equilateral triangle would be described by their union. The variety, or rather monstrosity, β. is very remarkable, as having flowers in five nearly equal divisions, quite scentless and tinged with green, the lateral petals not connivent but spreading, lower one or lip, broad, plane, and the spur entirely wanting. Of this monstrosity I had previously seen a dried specimen from the same station, in the possession of Miss E. Kilderbee, and was at a loss what to consider it. Mr. D. Stock, of Bungay, has remarked a similar alteration of structure in the flowers of Orchis pyramidalis.

Besides the figure of H. chlorantha in E. B. i. t. 22 (Orchis bifolia), and the elegant full length one of Curtis, Fl. Londin. ii. fasc. 6, t. 65, that in 'Flora Danica,' fasc. 40, t. 20362, is hardly inferior to the others as a representation of our common greater Butterfly Orchis. Reichenbach's three figures, Iconogr. Bot. ix. Nos. 1143, 1144 and 1145, are, like too many more of that hair-splitting author's, exaggerated portraits in form and colouring of H. bifolia and its varieties, H. brachyglossa and chlorantha. I have never found H. bifolia with such ell-long spurs, nor H. chlorantha so outrageously green, and cannot but suspect the figures of each were made from dried specimens, and coloured from the ideal examples of a vivid imagination or perhaps a treacherous memory. However that may be, they are not, I am convinced, normal states of the species they profess to represent, and unworthy of citation in the room of the elegant and faithful delineations in the 'Flora Londinensis' and 'Flora Danica' lately adverted to. Justice, nevertheless, requires that due praise be given to the many correct and sometimes admirable figures in the Iconographia of Reichenbach; a work which, with all its faults of perplexed arrangement and minute specific divisions, is still a most valuable and sumptuous repertory of botanical illustrations.

Ophrys apifera. In dry meadows, pastures, woods and thickets, on chalky banks, downs, and on wet slipped land, mostly on loamy or limestone soils, or where calcareous earth is a principal constituent; by no means uncommon, and in particular years even abundant, over a great part of the Isle of Wight and mainland Hants. Being extremely uncertain and capricious in its habitats, often appearing abundantly one season where it was scarce or failed altogether to show itself the year before, it is unnecessary to give more than a general view of its distribution, without recording its almost numberless special localities. Sometimes quite common about Ryde, at Quarr, Binstead, in Pelham fields, &c. About Cowes, at Egypt, Norris Castle, &c., and about Yarmouth. About Newport, at Carisbrooke (on the castle hill, &c.), Calbourne and elsewhere. Frequent on most of the downs about Freshwater, often in great abundance, as it was last year (1849). At Bonchurch, Ventnor, Steephill, Blackgang and most other parts of the Undercliff, on the chalky banks and pastures, often plentifully. In Bembridge Island, about the Culver Cliff, Whitecliff Bay, &c. On the banks of slipped land (green sand and clay) under the cliffs at Shankin. Abundantly on Kennerley Heath, near Godshill, in sandy loam amongst the furze, and very fine; June, 1843, in which year it was very universal in the island: but it is needless multiplying stations for this ubiquitous but not always plentiful species, as it may be found in most parts of the island and in most years by a little seeking, especially on the chalk and slopes of the downs. A specimen with the flowers nearly white, the lip only being greenish, was found by Mrs. Martin at Ventnor some years ago. On the mainland of the county O. apifera is about equally frequent. At West Meon in various places; the Miss Sibleys: and where a variety with white flowers has occurred, and a similar one is recorded by the authors of the catalogue in the 'Hampshire Repository' as having been found at Bordean. Warnford; Mr. Vickery. Bullington; Rev. D. Cockerton. Beacon Hill, Highclere Park; Cat. of Plants of Newbury !!! Nore Hill and Selbourne Park; Professor Bell. This beautiful and singular plant is well known here as the Bee-flower, and although no uncommon species over a great part of England, is made as much account of as though it were a great rarity, and the Isle of Wight had the exclusive happiness of producing it. The Bee-flower figures in all the guide-books, flourishes on the vegetation of the island, and is a staple article in every enumeration of Vectic memorabilia and amenities. In certain but indeterminate seasons it may be gathered in quantities, and sometimes attains here a height of two feet. Reichenbach's figure (Iconogr. ix. no. 1159) is very indifferent, and if representing this species at all, depicts a variety such as I have never met with. The exquisite one of Curtis in the 'Flora Londinensis' perfectly exhibits the species in its normal condition with us.

Ophrys aranifera. In chalky, clayey or limestone pastures; very rare? The var. *β. fucifera* (O. fucifera, *Sm.*) is the only form yet collected in Hants, and the Isle of Wight the only part of the county where it is certainly known to grow. First found May 10, 1841, by Albert Hambrough, Esq., on St. Boniface Down, above St. Boniface Cottage (several specimens). Behind Upper Mount, Bonchurch; Miss Dick and J. Saxby, Esq. !!! Several specimens gathered in Luccombe Landslip, by the side of the main path, May, 1843, by a servant of Miss Roper, of Ventnor !! On a sloping bank on the left hand side of the Cowleaze going from Ventnor to Bonchurch, just below the Madeira Vale Villas, May, 1843; Mrs. Clarkson !!! Gathered in this last station by Miss Tompson in 1846, and since by Mr. A. Hambrough and myself in 1848-49, at the end of April and beginning of May, in tolerable plenty. It has not been discovered elsewhere in the island, but will probably be found on the chalk in other parts of it if carefully sought for at the proper season; but being a smaller, and from its colour less conspicuous and attractive plant than O. apifera, and flowering many weeks sooner than that species, it may elude observation at any time. Bullington, abundantly; Rev. D. Cockerton: is this correct, and, if so, what form does the species put on? Our Hants stations are interesting, as being the most westerly ones known for this eminently eastern Ophrys, and furnish another proof of the assertion before made, that the floras of the east and west of England become fused into each other in this county. Smith quotes the beautiful figure of Curtis, Fl. Lond. ii. fasc. 6, t. 67, for his O. aranifera; to me that plate decidedly represents our variety, the O. fucifera of the 'English Flora,' and very admirably too. It is possible that O. arachnites, the only British species of the genus wanting to our county, may hereafter be detected in Hants.

——— *muscifera.* In chalky or clayey, usually hilly pastures, woods and thickets; less frequent than O. apifera, but far from uncommon in the Isle of Wight and county generally, although, like the Bee-flower, uncertain in its stations and variable in quantity in different years; flowering with us from the commencement of May to the beginning or even the middle of July. At the farther part of Calbourne New Barn Hummet, plentifully; May 9, 1846: and since gathered in some abundance in the same wood, of which it seems to be a pretty constant inhabitant. Plentifully on a rough, sloping, stony field nearly at the back of the Tolt Copse, Gatcombe, June 10, 1846. In the great fir and beech plantation on the down near Westover, several specimens upwards of two feet high, July 3, 1843. In a chalky hollow on the north side of Messly or Mersley Down, sparingly; May 28, 1844. Quarr Copse, in some plenty; Miss Theodora Price, June, 1838 !!! Field at Egypt, W. Cowes; Rev. Mr. Mann. Cliff above Gurnet Bay; Miss G. E. Kilderbee ! Shady lane under Carisbrook Castle, and on the borders of a lane leading from Roughborough farm up the down; Mr. G. Kirkpatrick. At Norris Castle; Id. In considerable abundance in the copse of low brushwood (chiefly hazel) on the down at the top of Alvington chalk-pit, about half a mile from Carisbrooke, on the Yarmouth road; Miss Dennett (vidi icon). Solitary specimens I have picked in several other places, and it occurs sporadically, I think, in nearly all parts of the island, but I hardly know if it be found on the green sand. Woods, &c., about W. Meon, as Hall Place, Westbury, Warnford, Chappets and elsewhere, common; the Miss Sibleys. Bordean Hill, frequent; Id. !!! Bordean Hill, Hambledon; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Parnell or Parholt Wood, near Farley, by Winton; Miss A. M. Yonge !!! Highclere; Dr. A. D. White. Highclere Park and Barton's Copse, by Sidmonton House; Cat. of Plants of Newbury. Nore Hill, Selborne; Professor Bell ! Doubtless widely and generally dispersed throughout the county, but probably rare in the western or New-Forest district. Its geographical distribution is remarkable, as, although found in Norway at least as far north as Trondiem (Drontheim) in lat. 63½, and, it is said, in the Loffoden Islands 68—69°, it scarcely enters Scotland in lat. 55—56°. The same sudden termination far to the south of its polar limit on the continent holds true of the next plant.

Herminium Monorchis. On chalky banks and pastures, rare? and not yet observed in the Isle of Wight. Bordean Hill; Rev. Messrs. Garnier and Poulter in Hamp. Repos. !!! I am indebted to Miss L. Sibley for pointing out to me the station for this little plant, which is on short pasture ground on the way to the ascent of the hill from Langrish, on the right hand near the lime-kilns. Miss G. E. Kilderbee has kindly supplied me with numerous fine specimens gathered there in July last. Fir plantation under Wheely Down, near Warn- d; Mr. Vickery. These are the only stations I find recorded for the Musk Orchis, but a plant so slender and inconspicuous may well be supposed far less rare than it appears to be.

Spiranthes autumnalis. On dry, open, turf pastures, lawns and heaths; by no means unfrequent in the Isle of Wight, nor, as I believe, throughout the county, but scarcer in some years than in others. So generally dispersed, and withal so uncertain in its stations, that a long enumeration of special localities would be unnecessary and often lead to disappointment, since it is continually making its appearance abundantly in new or unobserved habitats and disappearing as suddenly in old ones. Sometimes plentiful about Ryde and places in the vicinity, as at St. John's, Seagrove, Nettlestone, St. Helen's, &c. Fields and pastures in various places along the Undercliff, frequent. Near Hardingshoot farm, and on the turf near Sandown Fort. Fields about Chale; Miss Lucas. Northwood Park; Miss G. E. Kilderbee. Mount Cleve, Niton; the Miss Sims's!!! Near Carisbrook Castle, Colwell and Freshwater, Sir Nash Grose's (the Priory) grounds, near Ryde; Mr. W. D. Snooke. On St. George's Down (near Newport). Field opposite Alverton farm, Whippingham parish. Pastures west of Fishbourne Creek, through which a new road (leading nowhere) has been lately made; Mr. Charles D. Snooke. Occurs here and there in most other parts of the island. Picked in Hayling Island, September, 1849. In great abundance in Cranbury Park, near Winton; Miss A. M. Yonge (in litt.). Wheely Down, Old Winchester Hill (near Petersfield); Rev. E. M. Sladen. In the Long Lith, and towards the south corner of the (Selborne) Common; Rev. G. White. Woodcote, Sutton Common, near Alton; Miss L. Sibley. Lawn at Mr. Osborne's (Fareham); Mr. W. L. Notcutt. Magdalene Hill, St. Giles's Hill, grass plats in the warden's garden (Winton); Dr. A. D. White. To the majority of persons this plant smells delightfully fragrant, but to myself it is nearly inodorous, as is also the following, and all the exotic species, as S. gracilis, tortilis, &c., I have gathered in other countries.

——— *æstivalis.* In boggy places, by streams and ponds; very rare. Discovered just ten years ago by Mr. Branch* in the New Forest, along a stream on a small tract of sphagnous bog close by the high road, about two miles and a half from Lyndhurst, towards Christchurch, and where it was gathered by Mr. Borrer and myself in considerable plenty, August 6th and 7th, 1841, growing with Myrica, Narthecium, Drosera longifolia and Rhynchospora alba, &c.

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* Or by Mr. Jansen, according to Watson, Cyb. Brit. ii. p. 414.

The only station yet known for this fine species in Britain (excluding, of course, the Jersey locality), but it will probably be soon detected in other parts of the county and beyond its limits.* Some of my specimens are a foot in height. Dr. Gray seems to consider the S. latifolia of Torrey as identical with our S. æstivalis, but the former I do not remember ever to have seen. I have gathered a species very like our own in the mountains of Jamaica. Richard's generic name Spiranthes is admirably characteristic of the twisted or spiral arrangement of the flowers, and would have been worthy of adoption had not still stronger reasons called for its employment in place of Neottia, now restricted to the true Bird's-nest, *N. Nidus-avis*, originally so named by Linnæus.

Listera ovata. In dampish woods, thickets, copses and under trees in shady pastures; very frequent in the Isle of Wight, and I believe throughout Hampshire. Plentiful in Quarr Copse, Apley Wood, and most other woods about Ryde. Woods about Cowes. Abundant in Tolt Copse, Gatcombe. In Appuldurcombe Park. About Carisbrooke Castle, and in woods and shady places in most other parts of the island. Pasture field at Boldre Hill. Frequent in the beech woods of the mainland. Maindell chalk-pit (Fareham); Mr. W. L. Notcutt. Betwixt Hursley and Otterbourne; Dr. A. D. White. N. B.—Listera cordata, a species frequent in the north of England, has been found near Culbone, in Devonshire, and in Somersetshire, and may possibly be some day discovered on our highest Hampshire Hills.

Neottia Nidus-avis. Mostly sporadical in moist shady woods and copses, usually amongst dead leaves; not very common, although pretty generally dispersed over the island and county. In Quarr Copse occasionally, where I have repeatedly found it in a hollow (old stone pit), on the left of the entrance at Binstead, as well as in other parts of the wood, but rarely. Wood near East Cowes Castle. Hungerberry Copse, near Shanklin. Swainston Woods. Calbourne New Barn Hummet. Cleveland Wood, Appuldurcombe. Woods at the Priory, occasionally. Cothey bottom Copse, by Westridge. Several specimens in the large plantation of Scotch fir in Bordwood Copse, June 1st, 1845. In Northlands Copse, Yaverland, July, 1848. At Fernhill, but not seen there of late; Mrs. Sanders. In great Whitcomb Wood, near Gatcombe; Mr. G. Kirkpatrick! A specimen found on the lawn at St. John's, Ryde, June, 1843, by Mr. J. Lawrence, jun. Equally, if not more frequent on mainland Hants, so far as my observation has extended. Hampnage Wood, Avington, near Winton, 1848. In a high wood at Bordean, apparently frequent, July, 1848. Akenden Wood, near Alton, 1849. Westbury, Brookwood, Selborne; Miss E. Sibley!!! About West Meon, Beacon Hill Wood; Rev. E. M. Sladen. Holt and Wickham Woods; Rev. Messrs. Garnier and Poulter in Hamp. Repos. Selborne, "in the Long Lith, under the shady beeches amongst the dead leaves; in Great Dorton, among the bushes, and on the Hanger plentifully; Rev. G. White and Professor Bell!!! Highclere Park; Cat. of Pls. of Newbury. This plant is readily detected at all seasons, as the dry stems and firm subligneous capsules are persistent in the woods for a year or two after flowering. To myself the flowers of this singular species have the odour of Adoxa Moschatellina mingled with that of primroses, but fainter. From the researches of the late Hon. and very Rev. W. Herbert, there is no reason for holding this plant to be parasitical, much as its structure and habit appear to countenance such a propensity. The singular leafless Limodorum abortivum I conceive extremely likely to be discovered in England eventually, as it appears to be by no means very rare in the northern departments of France, and is also native to Belgium and other parts of central Europe.

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* I learn from Mr. Borrer that it is found in other spots in the neighbourhood of lhurst, and that it is still abundant in the original station (March, 1850).

Epipactis latifolia. In moist, shady and rocky woods and thickets, not confined to hilly places, but found at the sea level both on the chalk and clay, as well as on the uplands. By no means uncommon either in the Isle of Wight or on the mainland of the county, but rarely in any great plenty. All the plants found by me in the island are, I think, referrible to the true E. latifolia of the Manual, and to no other, at least I could never distinguish satisfactorily any form exactly corresponding to the E. media of Fries, although the leaves vary much in shape and breadth with us. In Quarr Copse, Binstead, here and there, but sparingly. Quite frequent, it may almost be called plentiful, in the wooded ground skirting the shore betwixt Ryde and Binstead, exactly the E. latifolia of the Manual, the flowers here variously suffused with purple, sometimes wholly of a pale green. Not unfrequent in the rocky, woody landslip between Luccombe and Bonchurch. Woods at Swainston occasionally, Kingston Copse, Tolt Copse, near Gatcombe. Rather plentiful in the great plantation on the down above Westover. A single specimen in a wood at Rowledge, and another seen in Sluccombe Copse, 1845. Westwood, and in other woods about W. Meon; the Miss Sibleys!!! Abundantly in Selborne Hanger, and in the High wood under the shady beeches; Rev. G. White!!! I am quite unable to say to which of the three supposed species or varieties of the original E. latifolia the plants from these stations are to be referred. Wood at Brookwood; Miss L. Legge! Under the firs on the downy slope of the hill S. of Chilcombe (near Winton); Dr. A. D. White. Otterbourne; Miss A. M. Yonge. Woods about Bordean, West Meon, shady parts of Froxfield Hangers, frequent; common about Selborne; W. A. B., 1849.

The upper edge of the anterior face of the stigma bears a small, porrected gland, secreting a frothy globule of an extremely viscid, milky fluid. This fluid, which is perfectly distinct from the nectariferous secretion of the stigmatic disk, has apparently for its object the retention of the pollen masses on their falling forward upon the posterior hollow of the stigma, and which masses, being destitute of the adhesive glands common to other genera of Orchidaceæ, could scarcely without such a provision be retained long enough on that organ to effect the fertilizing process. In the present genus the form of the anther-cells and pollen masses is reversed, the smaller ends of both being uppermost; in this inverted condition the usual appendages of stalks and glands could serve no other purpose than to keep the pollen masses suspended *over* but not in *contact* with the stigma, as by the above simple contrivance they most effectually are.

Epipactis media? My friend Professor Bell finds occasionally in Selborne Park and in the Hanger, a plan twhich he believes to accord with the description of this species in Babington's Manual; the flowers are very small and remarkably distant, the leaves much narrower than in E. latifolia, and gradually passing into the very attenuated bracts. I have seen only a single dried specimen, and cannot, therefore, venture to pronounce an opinion on its identity with the above presumed, but I fear problematical species. E. ovalis of Babington seems to possess far better pretensions to specific distinction, but is perhaps an unlikely plant to be found in this county.

——— *palustris.* In low marshy or boggy meadows, on wet slipped land and in other watery situations, but not common. Very plentiful on the banks of slipped land in Colwell Bay, associated with Gymnadenia conopsea, and at the upper end of Colwell Heath. Marshy meadows at Easton; frequent. Shore about Chine Head, and in various places in the landslip between Luccombe and Bonchurch. Abundant in the half dried up clay pits near Cranmore farm, near Ningwood, with Sparganium natans and Typha angustifolia, ly 14th, 1844. Marsh near Compton; Mr. W. D. Snooke (Fl.

Vect.). Between Shanklin and Godshill? Mr. J. Woods, jun. in Bot. Guide, but whether this plant be intended or rather E. (Cephalanthera) grandiflora or E. ensifolia, all of which have successively borne the name of Serapis longifolia, under which it is there mentioned, I am unable to say. Sowley Pond, near Lymington; Mr. R. Jefford!! Otterborne, in plenty; Miss A. M. Yonge. Warnford Moor; Rev. E. M. Sladen. These are the only stations known to me as yet for this very pretty species in our county.

Cephalanthera grandiflora (Epipactis grandiflora). Common in woods, groves, and bushy, shady places, in various parts of the hilly and chalky districts of mainland Hants, in the eastern and central portion of the county; extremely rare in the Isle of Wight. A solitary specimen in flower, June 8th, 1844, in the thickest part of the wood called the Hummet, at Calborne New Barn; all attempts to find more have been fruitless, though often made since. Several specimens found in full flower, June 8th, 1848, under hazels and beeches in a small hollow or ravine on the east side of Carisbrooke Castle Hill; Miss Dennett!!! This fine species doubtless exists in other parts of the island, but must still be, like Habenaria viridis, an extremely rare inhabitant here. In Bordean Hanger, with the following, in considerable plenty, and in woods about Langrish and Bordean generally. Abundant in Avington Woods (in the long southern ride, &c.). Murdon Woods, as well as in other woods in that vicinity (Winton); Dr. A. D. White!!! who tells me it is common in the great belts and clumps of fir plantation so frequent on the downs around Winchester. Wood near Upham (by Bishop's Waltham) with C. ensifolia; *Id.* and Miss L. Minchin. Warnford; Rev. E. M. Sladen. Holt Wood; Rev. Messrs. Garnier and Poulter in Hamp. Repos. (Serapias grandiflora). Highclere Park; Anon. Cat. of the Pls. of Newbury. Woods at the Grange, near Ringwood; Mr. Ingram. Selborne Hanger and Selborne Park, common in the latter; Professor Bell!!! In great abundance and of magnificent growth in a young plantation at Westbury House, West Meon; the Miss Sibleys; some of the specimens here are nearly two feet in height, forming clumps, many stems springing from one root (a rare thing in British Orchideæ), making a beautiful appearance!!! I found it apparently frequent in Parnell or Parnholt Wood, near Farley, May 26th, 1849. Miss G. E. Kilderbee finds the flowers of this and C. ensifolia powerfully fragrant, like tuberose.* I once thought I perceived some such odour in a large number of specimens of each enclosed in a tin box at night, but could never be made sensible of it in individual plants, any more than in Spiranthes autumnalis, so grateful to many people, or in Linaria repens, odorous to some, although quite as sensible as the generality of persons to the perfume of Gymnadenia conopsea, Habenaria chlorantha, violets, roses, and other garden scents.

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* Sir J. E. Smith says they are "perfectly inodorous at all times."—Engl. Fl. iv. p. 44.

Cephalanthera ensifolia. In precisely similar places with the last, of which it is often the associate, but much less general than that. Not certainly known to inhabit the Isle of Wight, unless the Serapias longifolia of Mr. J. Woods, jun., in B. G. were this species and not Epipactis palustris.* Abundant at Westbury in the same place, and intermixed with C. grandiflora; the Miss Sibleys !!! Plentiful in Bordean Hanger; Miss G. E. Kilderbee !!! Stoner Hill; Mr. Borrer. Wood near Upham (by Bishop's Waltham); Dr. A. D. White and Miss L. Minchin. Pink's Hill, near Warnford; Rev. E. M. Sladen. Wonston; Miss Legge! In the long southern ride in Avington Wood; Dr. A. D. White.

Mr. Watson (Cyb. Brit. ii. p. 419) intimates a doubt in his mind of the specific identity of C. grandiflora and ensifolia, but surely few plants can be better marked than these, nor have I ever observed the least disposition in them to intermingle their respective characters. C. grandiflora is a taller and far more robust species, often emitting two or several stems from the same root, the flowers larger, more distant, and extremely erect, often very numerous, beginning quite low down on the stem, and constituting a kind of leafy raceme; rather cream-coloured than white; sepals and lateral petals obtuse, the lip very blunt, leaves widely different in shape, far broader, thicker, not acuminate or (in appearance) distichous. C. ensifolia, on the other hand, is a smaller, more delicate and slender plant, seldom emitting more than a single stem from the root, with far narrower leaves of a

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* The great confusion formerly existing betwixt our two Cephalantheræ and Epipactis palustris, all of which had Serapias longifolia for one of their synonyms, make it impossible to determine which of the three Mr. Woods had in view. Since C. ensifolia grows with C. grandiflora in the woods of Hampshire, that may possibly have been the species intended by Mr. W. Yet I am inclined to the belief that C. grandiflora (called Serapias longifolia by Hudson) was rather the plant meant by that gentleman, which is known to inhabit this island, and I conjecture that the station between Shanklin and Godshill was in all likelihood the rocky copses known as Cowpit Cliff and Hatchett Close, where, although I have never seen either kind, these Helleborines are both likely to occur.

thinner and drier texture, like those of a grass, which, however, vary much in breadth, the lowermost being sometimes very broadly lanceolate, but the upper always narrower and considerably tapering at the points, and from being in general more closely set, present a sort of distichous arrangement in appearance only. The bracts, even beneath the undermost flowers, are extremely small, short and narrow, and in those at the top of the stem very minute indeed. The flowers are confined to quite the higher portion of the stem, are much closer together or approximate, and are not found in the axils of any but the greatly reduced leaves or bracts, hence they appear subspicate, like those of Epilobium angustifolium for example, whereas in C. grandifolia, the flowers originate at or even below the middle of the stem, and accompany the larger leaves, whence they assume a sort of racemose arrangement. In C. ensifolia the flowers are smaller, of a purer white (not cream-coloured), and less erect, the ovary diverging more or less considerably (sometimes nearly at a right angle) from the stem. The perianth segments do not close so completely over the lip, and the sepals are in this species narrower than the lateral petals, and so acutely pointed as to be almost acuminate. The lateral petals themselves are also slightly pointed, and much broader in proportion than in C. grandiflora. Moreover, the anterior margin of the lip is usually slightly triangular and pointed, but this character I find liable to exception. Finally, C. ensifolia lasts a shorter time in flower, if it does not begin to flower earlier than C. grandiflora, which continues in blossom through a great part of June, whereas the other has all its terminal buds open by the close of May in this part of England, and was beginning to fade and look shabby on the 27th of that month, when my last specimens were collected. Indeed, the flowers of this species, from their more delicate texture, fade with singular rapidity on being gathered, whilst those of C. grandiflora merely turn partially brown. The specific characters of these species may be thus stated:

Cephalanthera grandiflora. Leaves ovato-elliptical to elliptic-lanceolate; bracts longer than the glabrous germen; flowers distant, subracemose, sessile, quite erect; sepals and lateral petals obtuse, connivent on the included, very blunt and rounded lip.

——————— *ensifolia.* Leaves somewhat two-ranked, the lower lanceolate, the superior very narrow, ensiform; bracts much shorter than the glabrous ovary, the highest extremely minute; flowers approximate, subspicate, sessile, more or less diverging; sepals narrower than the acute lateral petals, subacuminate, connivent; lip included, obtuse or slightly pointed.

C. ensifolia is perhaps more decidedly a plant of hilly elevated woods than the other, and ranges apparently farther to the northward, both in Britain and on the continent. The flowers in each, but more particularly in the larger species, look like buds just about to open, and in form remind one of miniature tulips or the blossoms of Chelone glabra. C. rubra, a very rare English plant, might nevertheless be found with its congeners in this county.

Malaxis paludosa. In spongy bogs (parasitic ?), on Sphagnum and other mosses; rare. The present Dean of Winchester, the very Rev. Dr. Garnier, told me he believed he once found the Malaxis in this island, and it is included in a short anonymous list of Isle-of-Wight plants found in 1818, sent me by my friend Miss E. Sibley, but the authenticity of which is discredited by the mention therein of Echinophora spinosa, Hieracium (Crepis) paludosum, and Polemonium cæruleum. We have few places here suited to the production of Malaxis paludosa, but the following are those where the search for it would have the fairest chance of success:—The Cranberry swamp in the valley of the Medina, and on Rookly Moors; the marsh at Easton, boggy parts of Colwell Heath, and the bog at Cockleton, near Cowes; also on parts of Blackpan and Lake Commons. Bere Forest, near Wickham; Rev. Messrs. Garnier and Poulter in Hamp. Repos. On bogs betwixt Southampton and Rownam; Merrett. Southwick, behind Portsdown, 1840; Mr. Jansen! Very fine and abundant by a stream in a boggy valley near Bournemouth; Mr. Borrer (in litt.). I searched long and carefully last autumn for this plant in what, from his always accurate and minute directions, I have no doubt was the exact spot intended by my kind friend, but could not find a specimen. Is the Malaxis fugacious, or periodical like others of its order ? Sturmia Lœselii (Liparis, *Hook. Lindl. &c.*) is coupled doubtfully with Malaxis paludosa under the older names of Ophrys paludosa and liliifolia in the anonymous catalogue above referred to, as found in this island, and the Dean of Winchester has intimated to me a similar report. Although this rare species, yearly becoming rarer by draining, has hitherto been found exclusively in the eastern midland counties, I know not any reason why it should be confined to that part of England. The absence of bogs of any extent in the island certainly militates in some measure against the probability of its occurrence in this division of the county. Miss E. Sibley writes me: "Cypripedium Calceolus, I am told, grows at Bordean; I have often looked for it, and doubt its existence."* My doubts are not less than my friend's as to the truth of the statement, and yet I know not why the discovery of the Cypripedium in Hants or any other southern county should be deemed improbable, beyond the fact that it has hitherto occurred only in the north of England. But the species is not essentially a northern one, being sparingly distributed over the greater part of central Europe, in the north of France, Belgium and Germany, chiefly in hilly situations and on calcareous rocks, conditions abundantly fulfilled in this part of the kingdom. The discovery of such plants as Habenaria albida, Listera cordata and Campanula latifolia in the south of England, all of which we have accustomed ourselves to look upon as appertaining to the north of our island alone, should encourage us to hope that many of the plants of Yorkshire, and even of Durham and Northumberland, may eventually be detected in these southerly parts; of course in diminished frequency and abundance. I have before remarked (Phytol. ii. 1000) that Sesleria cærulea, banished in Britain to the limestone hills of Yorkshire, is found on dry chalk banks at Rouen, and may therefore be reasonably looked for on those of Hants and other counties where the cretaceous system prevails. I may cite Saxifraga Hirculus and Scheuchzeria palustris amongst species whose equatorial limits in Britain late researches have shown to be less contracted than for a long time they appeared to be: so in like manner we may predicate of many other northern plants a more extended range southward, in accordance with the botanical axiom alluded to in speaking of Epilobium angustifolium, at p. 365 of the present volume, that the equatorial boundary of plants is less exactly defined than their polar limits.

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* Amongst such plants as Rosa alpina, Veratrum album and other startling novelties

WM. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight.

(To be continued.)

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to the Hampshire Flora that have been communicated to me from time to time by correspondents, known or unknown, the Dog's-tooth Violet (*Erithronium Dens-canis*) I have been assured grows in certain of our woods, but where, I have at this moment forgotten, and am content to remain in ignorance of the station, until conducted thither and shown the plant *in situ*.

Relations of Plants to Subjacent Rocks, in the Chain of the Jura, &c. Translated from MONS. JULES THURMANN'S 'Essai de Phytostaque appliqué a la chaine du Jura,' &c.

THE principal agents in determining the vegetation and the flora, that is to say, the distribution of the species, are the following:— Climate, depending chiefly on latitude and elevation; then, climate being equal, the physical characters of the subjacent rocks, with the effects which result from them in reference to the hygroscopicity, the quality, and the division of soils.

The subjacent rocks, with reference to their mode of disintegration, their power of absorption, and their permeability, are divisible essentially into *eugeogenous* and *dysgeogenous*.

The eugeogenous rocks produce an abundant detritus. When it is of a clayey (*pélique*) nature, it makes humid stations that are often inundated. When it is of a sandy (*psammique*) nature, it makes loose soils that are almost always cool. When it is sandy and clayey (*pélopsammique*), that is to say, partaking of both natures, it makes stations with intermediate qualities.

The dysgeogenous rocks produce a scanty detritus, sometimes sandy, usually clayey, and always making stations more dry than those of the eugeogenous rocks.

To the eugeogenous subjacent rocks corresponds essentially the presence of a group of plants which prefer humidity, or the *hygrophiles*. To the subjacent eugeogenous clayey rocks correspond the *hygrophiles péliques*, which particularly prefer cool stations. To the eugeogenous sandy rocks correspond the *hygrophiles psammiques*, which particularly prefer loose soils.

To the dysgeogenous subjacent rocks correspond essentially a group of species which prefer a certain degree dryness, or the *xérophiles*.

The *hygrophiles péliques* accommodate themselves on the dysgeogenous soils in certain cases, and are sometimes scattered over these. The *hygrophiles psammiques* cannot usually live on dysgeogenous soils, and are suddenly arrested on meeting them. The *xérophiles* are scattered upon the eugeogenous soils in all points where these soils afford a suitable dryness.

The greatest contrasts in distribution are found among the *hygrophiles psammiques* and the dysgeogenous soils.

In proportion as we advance northward the *hygrophiles* accommodate themselves to the soils more dysgeogenous, whilst the *xérophiles* shun more the eugeogenous. In proportion as we advance southward the *hygrophiles* require soils more eugeogenous, whilst the *xérophiles* accommodate themselves to soils less dysgeogenous.

The extreme limits of the physical characters of soils induce vegetable sterility by three different conditions. Hard rocks absolutely dysgeogenous are sterile in consequence of their unchangeability, which is opposed to the production of detritus. The soft rocks of an eugeogenous and very clayey nature are sterile occasionally in consequence of their compactness and impermeability. The eugeogenous and very sandy rocks absolutely moveable may be and really are often sterile, not in consequence of their extreme separation, but in consequence of their mobility. The first become an element of the soil and contribute to establish at their surface fertility by disintegration, the second by division, the third by fixedness. The first are essentially dry; the second essentially humid; the third essentially divided, more or less dry according as they are more or less mobile, and, when fixed, necessarily more humid than the first, much less so than the second.

All things equal in respect of latitude and elevation, a district of subjacent eugeogenous rocks is more cool (*frais*), more humid, more watery, and probably more cold (*froid*) than a dysgeogenous district. Its vegetation is less dependent on levels, more common, more boreal, more social, usually more rich in species, and particularly more rich in plants of the lower families, more herbaceous, with roots deeper and branched, more numerous, &c. It presents characters opposite to the dysgeogenous soil.

The more aquatic the vegetation, the more is it independent of latitude and levels; the more terrestrial it is, and the more is it under the influence of those conditions. The rupestral (*saxicoles*) species of the dysgeogenous rocks are essentially the best climatological characteristic.

In a country of moderate extent, the mean annual temperature of the air, although an incomplete expression of the climate, is however an element sufficiently predominant to be in constant and appreciable relation with the principal facts of phyto-statistics, such as the localization (*cantonnement*) of groups of species the most southern, the most northern, the most alpine.

The same regions of elevation will not offer the same character of vegetation, except so far as they belong to zones almost equally eugeogenous or dysgeogenous. These regions are not then to be compared together, with respect to the influence of levels, unless equal in regard to soil. The region of the plains can almost never be legitimately assimilated to the superior regions established for the mountains.

Independently of the three principal agents of distribution indicated above, there are divers conditions that circumscribe the area of species in general or of certain species in particular, as the casual limit, every plant ceasing partially,—the topographical limit, notably the chains of mountains,—the limit imposed by the extreme sociability of certain species, &c. On the contrary, other conditions extend the area of distribution, such as certain facilities of mechanical transport at contemporary epochs, historical or even geological. These divers conditions, singly or in combination, produce certain facts of distribution that, in obeying the requirements of latitude, of levels and of soils, are not however in exclusive dependence upon them. These facts, in a limited country, may be salient, and over-ride in some measure the phyto-statistical generalities attributable to the three chief agents above mentioned. But they are most usually too few to alter materially the aspect of the generalities.

The flora and the vegetation are then two essentially different things. The flora may be rich and the vegetation scanty, or the reverse. The number of species of each order is a bad comparative test between two neighbouring countries. The census (*rôle*) of each species, regarded in its quantity of distribution, ought to be the chief element of that comparison. One characteristic and widely-spread species modifies more the vegetable landscape than numerous rare species. Groups of species characteristic of a region of altitude may represent or rather characterize sufficiently the relative composition of the vegetable landscape in different districts. These species should be selected among those that contrast by their presence, their absence, or their degree of distribution, between different soils and levels.

All the facts of distribution presented in our field of study are explicable on the principles thus summed up. They are all essentially dependent on the united influence of latitude, of levels, and of the mechanical qualities of the subjacent rocks. There is no exception in this last respect, unless for certain salts soluble in water, whether of mineral or of animal origin.

N.B.—The preceding summary is translated from a very elaborate and important work, in two volumes, published at the end of 1849, by Mons. Jules Thurmann, entitled 'Essai de Phytostatique appliqué a la chaine du Jura et aux contrées voisines; ou Etude de la dispersion des Plantes Vasculaires envisagée principalement quant à l' influence des Roches Soujacentes.' We have preferred to retain a few of the Græco-Gallic terms untranslated. C.

Remarks on a Narcissus found near Malvern.

By JOHN ROBY, Esq.

I BEG to forward for your notice a double Narcissus, quite new, I fancy, to English Botany. It grew along with more in a meadow, far from any house or garden, near this place; but nevertheless I was apprehensive it might have escaped from cultivation. Making inquiry, however, I find that in a pasture or meadow near Lord Somers' park, at Eastnor, a few miles hence, it occurs in tolerable plenty and indubitably wild, inasmuch as it has been known there many years, and the ground unbroken within the memory of man. Here also are specimens of N. poeticus, I understand. I am informed, too, of another locality for the very same description of flower near Northampton, by a brook running through a low meadow; and again, if I mistake not, near Southampton, where double varieties of the N. biflorus do unquestionably grow wild. I am puzzled about the name, as I do not remember it in gardens, nor can I find a figure in what books I have. I should feel much obliged by any remarks or information on the subject.

JOHN ROBY.

Great Malvern, May 1, 1850.

[The plant is Narcissus incomparabilis. In Dillwyn's 'Materials for a Fauna and Flora of Swansea' the following notice of it occurs: "Grows in the little park at Margam, and Mrs. D. Llewellyn has shown me good ground to believe that it has continued to do so for at least two centuries—p. 36." I cite this from Watson's 'Cybele Britannica,' ii. 446, a reference to which will show that seven exotic species of Narcissus have been recorded as growing in Britain. The flower sent by Mr. Roby is double, or, as the cultivators have it *flore pleno:* it is very common in gardens: children know it by the name of "butter and eggs."—EDWARD NEWMAN.]

Warwickshire Habitat for Gagea lutea. By the Rev. W. T. Bree, M.A.

The yellow Ornithogalum (as it used to be called) may be considered, I suppose, a plant of sufficient rarity to justify the record of a new locality in the 'Phytologist.' It is not mentioned by Withering, who resided at Birmingham or in the neighbourhood, as a Warwickshire plant; nor is it enumerated by Purton as occurring in any of the midland counties. Early in the present month I had the pleasure of gathering roots of Gagea lutea abundantly in a meadow in the parish of Sheldon, about six or seven miles from Birmingham, on the Coventry road. The plants had been so grazed down by cattle, that little more than the stumps of the leaves were to be found, except where they had been protected by the bushes; and a friend of mine who had visited the spot a short time before, could meet with only two weak-flowering specimens. The merit of the discovery of the plant in this locality is due, I believe, to the Rev. Mr. Gorle, who mentioned it to the friend who directed me to it. The Gagea grows under bushes on the margin of a little brook about a quarter of a mile from the turnpike road, on the right hand side, going from Coventry towards Birmingham. About a mile from the 'Cock' at Elmdon, the brook crosses the road, having come down from the grounds of Elmdon Hall (also about a mile distant), the hospitable mansion of W. C. Alston, Esq., who kindly accompanied myself and friend to the spot. I regret to add that, in all probability, after the present year the Gagea will be entirely destroyed from this locality; a new brook course, rivalling a Roman road for straightness and uniformity, has been cut, and the old circuitous one, in spite of its natural beauties and botanical treasures, is of course doomed to be filled up and its banks stocked and leveled. I am informed, however, within these few days that the Gagea occurs also in other spots lower down the stream, where, let us hope, it may meet with a better fate, and long remain for the gratification of botanists who may wish to see it growing wild in Warwickshire.

W. T. Bree.

Allesley Rectory, May 18, 1850.

Notice of '*A Flora of Leicestershire, comprising the Flowering Plants and Ferns indigenous to the County.* By MARY KIRBY, with Notes by her Sister. 1850.'

WE are glad to have the opportunity of announcing the publication of another county Flora; useful by itself to botanists within the county, but also increasing the usefulness and interest of those previously published, by affording the data for comparisons in local and geographical botany.

The small volume before us, however, is essentially two works in one. First, we find a list of species for the county of Leicester, with a pretty copious collection of localities for the less common; the list arranged according to natural orders, and adapted to the second edition (1848) of the 'London Catalogue of British Plants.' Secondly, at the end of the list of species under each order in the series, are various notes on the derivation of names, the medical and other uses of plants, their countries, &c. These notes are of course compilations or repetitions from other works, and have no special reference to Leicestershire or to the plants of Leicestershire. We think it would have been better to have printed them as a second part or an appendix to the true Flora of the county; and thus to have avoided the many awkward breaches of continuity in the list of species.

With some few exceptions we judge the list of species to be accurate, and perhaps nearly complete for the county. Few of the species enumerated are those decidedly unlikely to occur in that part of England; and among the likely species there are not many absentees. As an instance, however, on both sides, we may mention that Tofieldia palustris is entered *positively* as a Leicestershire plant, while Narthecium ossifragum is omitted. Now, judging by their known distribution in England, we should say that the Narthecium is very far more likely to be found in Leicestershire than is the Tofieldia; and, moreover, we fully anticipate that further investigation will show the name of the latter misapplied to the former in this case, although the authoress informs her readers that she has seen a specimen collected "near Moira, in 1828," by Mr. John Moore, a surgeon in Leicester. Callitriche autumnalis and Circæa alpina may also be entered in the dubious category, although somewhat less improbable than the Tofieldia.

We regret to see the Sempervivum tectorum, Sedum album, Armoracia rusticana, and other garden plants, entered among those "indi-

genous" in Leicestershire, without distinction or qualification. This promiscuous inclusiveness seriously detracts from the authority of the Flora, as a county list of native plants, for all the doubtful or suspected species.

The authoress has been aided by several distinguished botanists, as the Rev. Andrew Bloxam, the Rev. W. H. Coleman, the Rev. Churchhill Babington, the Rev. T. Butler, &c. Mr. Bloxam gives a descriptive list of the Rubi found in the county.

C.

Botanical Society of London.

Friday, April 5. George Cooper, Esq., in the chair.

The following donations were announced:—Parts 1, 2 and 3 of the Gardener's Magazine of Botany,' conducted by Messrs. Moore and Ayres; presented by the editors. 'Journal of the Royal Agricultural Society of England;' presented by that Society. 'Journal of the Statistical Society of London;' presented by that Society. 'Proceedings of the American Philosophical Society;' presented by that Society. 'Twenty-ninth Report of the Council of the Leeds Philosophical and Literary Society;' presented by that Society. 'A Collection of Dried Specimens of the Flowering Plants and Ferns growing native within a district of the County of Norfolk, embracing an extent of about Forty Square Miles, having for its centre the Town of Fakenham;' presented by W. L. Notcutt, Esq.

Robert Hudson, Esq., F.R.S., &c., of Clapham Common; Dr. Caspary, of Cringleford, near Norwich; W. H. Purchas, Esq., of Ross, Herefordshire; and Mrs. Lloyd Watkins, of Pennoyre, Brecknock, were elected members.

The conclusion of Mr. Coleman's paper 'On the Plants indigenous to the Neighbourhood of Horsham, Sussex,' was read.—*G. E. D.*

Notice of 'Entwickelungs-Geschichte der Farrnkräuter. Von J. Grafen Leszczyc-Suminski.' Berlin, 1848.

In the August number of the 'Phytologist' (Phytol. iii. 613) we announced the publication of this remarkable work, and gave an outline of the theory promulged by the author, reserving for a future occasion a more complete and extended notice. The subject was considered so interesting, that every contemporary journal which could possibly bring Botany within the scope of its contents followed in our wake, and before the close of the year we had *articles* all but innumerable on Suminski's discoveries. The time has now arrived for us to fulfil the promise we first held out, and to take a careful and impartial review of a theory so important to science. We conceive, however, that it will be desirable, as well as acceptable to our readers, to trace the records of fern-reproduction *ab initio*, so that each successive author may enjoy exactly that share in the ultimate conclusios to which his labours have entitled him: we shall then give *verbatim* exactly so much of Suminski's work as may be considered new to science; next we purpose briefly to recapitulate the objections urged by botanists, together with our view of those objections; and, lastly, to state the results of our personal investigation of the pro-embryo, and to compare such results with those obtained by Suminski. This portion of our observations must of course be accompanied by illustrative outline figures. And here it may as well be observed, that whereas Count Suminski professes to have confined his observations to the pro-embryo of a single species,—Pteris serrulata,—ours have no such limit, our specimens having been selected solely from their fitness for examination, and the species or even genus to which they belong not having been considered a matter of importance. To the general botanist this may appear a somewhat slovenly and careless method of investigation; but to those who have experienced the uncertainty attending the raising of ferns from the sporules it will be rather regarded as an advantage, seeing that the pro-embryo may, and we believe does, afford characters for generic and specific distinction, and that an error in nomenclature is likely to do more injury and create more confusion than can arise from the absence of nomenclature.

The reproductive organs of ferns have long obtained the notice of botanists, but it is surprising to find how very meagre was the information obtained respecting them. The 'Encyclopædia Britannica,' a work considered at the time as one of authority, and which obtained a circulation positively enormous, has touched briefly and obscurely on the subject: it contains the following vague and unsatisfactory passage, under the head Filices, in the article Botany.

"The flowers, whatever be their nature, are, in the greater number of genera, fastened, and, as it were, glued, to the back of the leaves; in others, they are supported on a stem which rises above the leaves, but in some they are supported on a flower-stalk, as already mentioned. The stamina are placed apart from the seed-bud in a genus termed by Mr. Adanson *palma filix;* in the other ferns, where we have been able to discover the stamina, they are found within the same covers with the seed-bud."—iii. 470. Here, then, is an absolute mention of ascertained male and female organs; but it is impossible to form the least idea of what the writer really intends to convey;" indeed, the subject is scarcely worth an inquiry, seeing that we cannot suppose the author of so loose and vague a definition to have disvered any organs that have escaped the more careful investigation of botanists during the fifty years that have elapsed since the publication of the volumes in question.

Subsequent publications show that the subject of reproduction has also obtained the notice of cultivators. The following passage, published almost simultaneously with the foregoing, will be found at page 93 of the second volume of the 'Transactions of the Linnean Society of London.'

"*Account of the Germination and Raising of Ferns from the Seed, by Mr. John Lindsay, Surgeon in Jamaica.*—To enable me to observe the germination of the seeds with ease and certainty, I mixed some of the powder with some of the mould it was to be sown in, and by the help of the microscope was soon able to distinguish readily the different parts of the powder or fructification from the particles of mould in which it was sown. Having collected the dust of some of those ferns which, from the number of their young ones rising everywhere, promised to grow readily, and sown it in a pot, &c. * * * * * I observed no alteration till about the 12th day after sowing, when many of the small seeds had put on a greenish colour, and some were pushing out their little germ, like a small protuberance, the rudiment of a new fern. This little protuberance gradually enlarged, and they had acquired small roots, and the remains of the little seeds were still discernible where the roots of the infant plant commenced. Although the young ferns were now very conspicuous by the microscope, the naked eye could see nothing but a green appearance on the surface f the mould, as if it were covered with some very small moss: this was the numberless young plants from the quantity of the seed sown. In some weeks this moss began to appear to the naked eye like small scales, which gradually enlarged: they were generally of a roundish figure, somewhat bilobate, but sometimes more irregular; they were of a membranous substance, like some of the small lichens or liverworts, for which they might readily be mistaken, and of a dark green colour. At last there arises from this membrane a small leaf, different from it in colour and appearance, and shortly after another still more different. Now each succeeding leaf grows larger than the last, till they attain the full size, and are complete in all their parts and discriminating characters of their respective species."

Several figures accompany the paper, showing the marchantimorphous pro-embryo, and the mode in which the first circinate frond arises from it. We can say but little in commendation of these illustrations. Knowing what they propose to represent, we at once recognize them, but we doubt their affording any clear idea to those who were not previously perfectly familiar with the objects themselves.

The tenth volume of the 'Transactions of the Royal Society of Edinburgh,' dated 1826, contains a paper on the germination of ferns, very much more elaborate and precise than either of the preceding. It is from the pen of the Rev. John Macvicar, of Dundee, and correctly figures and describes the pro-embryo in its earliest stages.

The first volume of the 'Magazine of Botany and Zoology,' dated 1837, contains a paper intituled 'Observations on the Germination of Ferns,' by Mr. J. Henderson. This is somewhat more diffuse and more explanatory than that last mentioned: it is however principally horticultural, containing ample directions for the cultivation of these minute vegetations. The description of the first germination and also the figures are better than any previously noticed: the former we now extract.

"The first trace of germination is indicated by the appearance of a number of exceedingly minute green specks on the surface of the mould: if one of these is placed under a microscope, it will be found that the sporule has burst open into two nearly equal halves, and a small greenish body occupies the lacerated orifice. This is, as far as I can ascertain, a single cellule, the inert body which was contained in the sporule called into life. The sporule is therefore composed of two parts, namely, the external integument and the internal cellule. The latter swelling beyond the capacity of the former bursts it open, and is then elongated a little beyond the ruptured edges of the integument. From the anterior apex of this primordial cellule another is emitted, generally of a spheroidal form, and about the same time an exceedingly minute pellucid fibril is emitted from its posterior end.

"The first indication of the formation of a new cellule is the emission of a small ovate body from the anterior end of the previously formed one: at first it is almost colourless, and appears like a mere exudation of sap; as it advances, its almost liquid surface is gradually changed into a greenish pellicle, and the cellule then swells into a spheroidal form; but this form is very soon altered when in its turn it has protruded a new cellule. This last, originating on the convex apex of the preceding (from which it appears to draw the liquid necessary for its own formation), is during its enlargement gradually drawn closer and closer to the other, the convex end of which finally becomes concave as the two surfaces approximate and form the partition between one cellule and another.

"The manner in which the cellules increase varies in different species. In some a single cellule is emitted from the primordial one, and from the end of that another, and so on to the amount of four or five, before any lateral increase takes place. They then begin to increase rapidly to the right and left, ultimately forming two roundish lobes, with a deep intermediate sinus. As the cellules are added, delicate fibrils issue here and there from their lower surfaces at or or near their union with one another, taking a downward direction, and finally insinuating themselves into the pores of the soil. The lobes continue to increase externally until they have attained a certain size, when all external increase ceases: the primary frond is then composed of a single lamina of cellules, which diminish in size from the centre to the circumference, and in appearance very much resemble the thallus or lobed frond of some Hepaticæ.

"But this is only one of the forms which the primary frond assumes. Some increase more rapidly at first, and soon acquire a circular or reniform shape, increasing by the addition of cellules at the circumference; others divide into a number of lobes, standing nearly upright; while some produce one lobe after another, the lobes being recumbent, one lapping over the other. Some again have both surfaces covered with minute pedicellate glands; while in others the glands are only found on one side of the frond; and some, as the different species of Adiantum, are perfectly smooth and naked.

"When the lobes have attained a certain size, external increase ceases. A slight swelling may sometimes be perceived of the cellules lying at the bottom of the sinus, and between the bases of the two lobes, which are of a large size: from the lower surface of the space composed of these cellules a number of small fibrils are sent out, which penetrate a short distance into the soil, and supply the whole cellular body with nourishment. They are most numerous under what may be termed the base of the primary frond, namely, where the lamina first begins to widen; and between this and the bottom of the sinus is the space on which the little knot of cellular matter is elaborated, in which the first gyrate frond and the radicle originate.

"The process by which this is produced consists, in the first instance, in the emission, from the lower surface of the above-mentioned cellules, of a number of others, generally much larger in size, of an hemispherical form, and proceeding at right angles to the plane of the cellules on which they originate. These arise very near to one another, and some unite into a confluent mass, forming a thick coating on the surface of the other cellules. From this coating others are protruded, which in like manner become confluent, and this cellular mass, tapering as it accumulates, terminates in a blunt or rounded point.

"Previous to the development of the frond and radicle, a further accumulation takes place at the summit of the cellular knot, which now begins to swell out at two opposite points. The form of the knots varies in different species. In some it is round or hemispherical; in others nearly flat or even hollow, in which case the cellular swelling is on the upper surface (sometimes, but very rarely, the knot itself is produced on the upper surface); some, again, are surrounded by short detached filamentous processes, originating on their surface, and composed of elongated, almost colourless cellules. These are the incipient paleæ or scales which surround the caudex of some ferns in a more advanced state; in some species, indeed, they assume the characters of flat, tapering, incurvate, membranous paleæ even before the gyrate frond is developed.

"There is a remarkable similarity in the appearance of the cellular knot at this stage of its growth to the formation of the gemmæ or buds produced in the axillæ of the leaflets, and on the surface and the margin of the fronds of some ferns, such as Polypodium proliferum, Asplenium viviparum, &c. In the latter case, however, several fronds are developed before any root appears, but in the former the first gyrate frond is almost uniformly preceded by a root.

"The production of the important body above alluded to, is the ultimate end and effort of the primary frond, and as it is the point at which gyrate development commences, it may be regarded in the light of an incipient caudex. When it is matured according to some one of the forms it assumes in different species, a root is protruded from one side of it, and soon after a small gyrate frond emerges from its summit, which, when developed, occupies the edge of the cellular knot, having the base of its stipe placed directly over the base of the radicle. The last immediately descends into the earth, while the former, rising from under the primary frond, opens out into a small simple or lobed leaflet. When this is matured another is sent out, and the same process is repeated, a new root being in general added with each successive frond. The cellular mass in the meantime accumulates, and is gradually converted into a central caudex. The primary frond having completed its office withers and decays, while the characters of the perfect fern become more and more apparent, as one frond succeeds to another."—p. 335.

It is no part of our design to investigate with a view to criticism these preliminary quotations: our readers will not, therefore, draw the conclusion that we assent to Mr. Henderson's suggestions because we make no attempt to refute them: we wish merely to trace the history of these observations up to the present time; and, as we have already stated, shall express our own views hereafter.

On the continent the subject has received more careful investigation than with us. Agardh has figured the pro-embryo and the development of the first circinate frond more faithfully than either of the authors we have cited (see Lehrbuch der Botanik, pl. 3, figs. 40—42).

We now arrive at that discovery which originates the question to be considered. In the year 1844, Nägeli found on the under surface of the pro-embryo of ferns bodies which he considered absolutely analogous to what are termed the antheridia of the Musci, Hepaticæ and Characeæ. In the 'Zeitschrift für Wissenschaftliche Botanik von M. J. Schleiden und Carl Nägeli,' published in Zurich, he described these organs with great minuteness and accuracy; but his conclusions differ from those of the author whose work is the subject of these remarks, inasmuch as he regarded the larger organs or pistillidia of Suminski to be absolutely identical with the antheridia, but to have attained a more advanced stage, and exhibited a more perfect development. Suminski, criticising this view, asserts that "Nägeli was guided by a false principle in his researches, since the bodies in question are readily distinguishable as two separate classes of organs, whether we regard their actual structure or the physiological functions they are destined to perform." The soundness of this criticism we again leave to the judgment of others, and proceed to a literal transcript of Suminski's views, premising however that we omit entirely his detailed account of the germination of the sporules of Pteris serrulata, on which he informs us all his observations have been made, because his descriptions do not differ sufficiently from those of Henderson, above cited, to render them of general interest, or of importance in the present inquiry.

"On placing the pro-embryo of a fern under the microscope, certain gland-like, globular cells will be seen projecting from its under surface, and occasionally, but not so commonly, from its margin. As the pro-embryo advances towards maturity, these bodies increase in number, and principally occupy that basal portion of the under surface from whence the rootlets may be observed to issue. Some species of ferns, and especially Pteris serrulata, are remarkable for the great number of these bodies. These globular protuberances originate in a sack-like elongation of particular cells of the pro-embryo, but a free cell is soon formed in their interior containing a homogeneous mucilage, and within this, transparent globules or distinct nuclei with nucleoli. As soon as this interior cell has so far increased in size as to fill the original projecting sac, it is divided by a septum from the surface of the pro-embryo, and thus attains the character of an independent organ. A third cell is often formed beneath this septum, and being flattened above and below, serves as a support to the upper cell, which frequently, at a very early period of its existence, displays in its interior new and very minute cellules, filled with a granular substance; these are various in number, but are often arranged with great regularity; they gradually become more distinct, at last filling up the parent cell, which has the appearance of a sac distended with granules, the granules themselves from mutual pressure receiving a parenchymatous appearance. When the parent cell has attained maturity, it bursts open at the top, and discharges a number of small round bodies enveloped in mucilage. I have observed in some cases a rythmical motion uniformly pervading the whole of the discharged mass: the discharged bodies very shortly after their escape from the parent cell usually exhibit a rotatory motion on their own axes; each of them unfolds a spiral filament, which however remains attached to the delicate cellule [in which it was contained], and performs a rapid revolution round its axis.

"As Nägeli has described with great accuracy the various motions of these spiral filaments, it appears to me unnecessary in this place to reiterate his observations: I must, however, remark that I have discovered on the clavate anterior extremity of the spiral filament very delicate cilia, of considerable length; a strong artificial light is required to make them out distinctly, and they are best observed when the rotatory motion of the spiral filament has somewhat abated. About six of such cilia appear on each filament, and after this ceases to move they also gradually become quiescent, and are then so closely applied to it as almost to elude observation: still the movements of the cilia endure longer than those of the filament, and not unfrequently recommence after having once entirely ceased. Neither when in full motion, nor yet after motion has entirely ceased, can the figure of the spiral filament be clearly made out, and this is owing to two causes: *first*, its own convolutions and the movements of its attached cilia; and *secondly*, because after its motions cease its figure entirely alters, and it becomes a collapsed amorphous mass. It is, therefore, most essential that a moment for observation be selected when, although mature, it still remains within its cellule, or occupies a good and exposed position in the field of view. Under such circumstances it will be seen to exhibit two or three convolutions, the clavate extremity being pressed against the wall of the cellule. It should here be remarked that the clavate extremity of the filament contains a lengthened vesicle in its interior, and also that the other extremity tapers into a filiform tail, and terminates in a minute knot."

The author regards the parent cells above described as male organs, or antheridia; the filaments which they contain as spermatozoa, granules of pollen, or as the analogues of pollen-granules: and he forthwith proceeds with a description of the female organs or pistillidia, in the following words.

"In addition to the cells containing the spiral filaments above described, we find on the under surface of the pro-embryo, and located nearly in its marginal sinus, other bodies of greater magnitude and no less important functions. These are hollow oval bodies, and consist of a papilla composed of ten or twelve cells; while the first-mentioned [the antheridia] rarely contains more than one. The number of these [pistillidia] is very various, sometimes only three and sometimes as many as eight. They also differ from the preceding [the antheridia] in their mode of origin, and in their structure. That they are not identical with them, is proved by their mode of development."

Here we must again pause for a moment to invite the reader's earnest attention to what follows, because of all writers on this subject Suminski alone insists on this difference; Nägeli, Schleiden and others maintaining that the supposed pistillidia are merely antheridia in a more advanced stage. Seeing, then, that we are dealing with a controverted point, and one on which we may have much hereafter to say, we have endeavoured to render the author's words as exactly as possible.

"In the origin of such an organ the cellular layer [of the pro-embryo] becomes thickened by the formation of new cells. By this process a large, globular, intercellular space is formed, having a contracted orifice at the exterior extremity. The latter is generally six-sided, and is closely surrounded by green and usually quadrangular cells. The larger and more remote cells contain but little chlorophyll. From the margins of the cup-like orifice arise four rather large cells, arranged in a circle, containing a transparent fluid and being without nuclei: between these is a square intercellular space, which varies in size: from each of them three more are developed, virtually one above another; so that the square space becomes elongated into a canal, which leads to the interior of the organ. The cells at the apex are usually so closely approximate as to close the orifice. On account of the early origin of the canal the cavity seldom appears uncovered.

"These bodies, so different in structural characters, possess also a different physiological function, although [by some observers] regarded as antheridia in a more advanced state of development. By continual observation I have succeeded in discovering in them the sexual apparatus of ferns, hitherto regarded as cryptogamic. In the hollow oval bodies last described I recognize the female apparatus."

The passage immediately following we do not exactly comprehend, unless its meaning be to argue that the relative position of the male and female organs points out the true office of both. The author describes the ovule, which he finds within the pistillidium and near its base, as without envelopes, and as being a simple, naked nucleus, divided into two parts; the larger upper portion, or nuclear papilla, projecting from the surface of the pro-embryo, and the lower smaller portion, or cavity for the embryo-sac, buried in its substance. In the first there is again to be distinguished—*first*, the apical orifice or opening of the nuclear papilla; and, *secondly*, the continuation thereof, or canal of the nuclear papilla, leading to the cavity from the embryo-sac. The orifice is directed towards the base of the pro-embryo.

"Before the formation of the nuclear papilla, the embryo-sac arises at the bottom of the cavity already described, in the form of a minute transparent cell: this is seated on a small tubercle, which serves as a point for its attachment. Even at this early period we may detect within the cavity containing the embryo-sac certain of the spiral filaments which I have already described; these are from two to five or even more in number, and are perfectly free and never enclosed in their respective cellules: for at this period the said filaments travel, by the aid of their cilia, from the burst antheridium to the orifice of the pistillidium, and entering its apical orifice, pass down the canal to the embryo-sac. In this migration they are assisted by the mucilage in which they are enveloped, and by the moisture always present on the under surface of the pro-embryo. It requires a practical acquaintance with the figure and position of these filaments to detect them after having entered the cavity: the wide apical opening of the pistillidium, which as yet scarcely projects above the surface of the pro-embryo, tends greatly to facilitate their entrance.

"It sometimes happens at this period of the impregnation that we notice a great quantity of dead spiral filaments around the cavity of the nucleus; they appear wound like an S, or like a circle or a spiral figure. However, I have but seldom observed this appearance. As the embryo-sac grows, and thus displaces the spiral filaments, the canal of the papilla of the nucleus is formed in the manner above described, and receives into it one or two, but seldom more of them; the rest fall to the bottom of the cavity of the embryo-sac. Before their entrance into it they exhibit with advancing growth a distinct swelling, which occurs especially in those subsequently received into the canal. In the meantime the embryo-sac filled with blastema has formed in its interior a parenchyma composed of several cells (endosperm), appears green, and has so increased in size that it almost fills the cavity of the embryo-sac. One of the spiral filaments penetrates by one of its extremities into the part of the embryo-sac turned towards the canal. The penetrating end is that at which the smaller enlargement is situated, which at the same time exhibits a green tint; the larger, club-shaped, granular end projects out into the canal of the papilla of the nucleus: this usually encloses a little pear-shaped cellule. Here an obstacle of no slight importance interferes with the observation: the delicate filiform connexion of the two ends of the spiral filament is usually torn by the pressure of the glass covering the preparation, and thus we see only the separated ends, on in the canal, the other in the cavity for the embryo-sac. As soon as the first swelling has reached the middle of the embryo-sac, it separates itself from the spiral filament, and now forms in the embryo-sac a closed globule, the germinal vesicle. The other end projecting into the canal dies away. This appearance must not be confounded with the forcible tearing of the spiral filaments to which I have just alluded. The embryonary globule is produced by the union of the germinal vesicle with the embryo, and it is only attached below to the base of the cavity containing the embryo-sac by a very delicate filiform embryo-support. The colourless nuclear papilla dies away and dries up as the embryonary globule grows, and the canal assumes a brown colour. In this state it continues for a long time upon the now expanding cavity of the nucleus. Usually only one of the numerous naked ovules formed upon the pro-embryo developes its embryo. This does not appear extraordinary, since similar examples are not wanting in the vegetable world, and in many palms one only of the three original compartments is perfectly formed. An especial cause may be sought for here in the small size of the pro-embryo, which does not supply sufficient nourishment for several embryos. With the further development of one embryo, the others (the other rudimentary ovules) die. In these the mouth of the papilla of the nucleus opens, and allows the dead spiral filaments and the rest of the contents to escape. The canal, and especially the cavity for the embryo-sac, then exhibits a brown colour. In this state the latter may be most distinctly recognized. On the contrary, this part in vegetating ovules can only be observed by a most careful extract of the single organ. For while on the one hand it is covered by the still erect nuclear papilla, the want on the other hand of any peculiar colour, or of otherwise distinguishing outlines, renders the detection of it impossible. Polypodium aureum is, next to Pteris serrulata, the best adapted of all the species which I have examined. The impregnation of all the families, genera and species is just according to the above-described type; an exception occurs in the appearance on the border of the pro-embryo, even in its earliest stage, of a spiral filament-organ, differing somewhat in structure as it loses its uni-cellular aspect. Five or six parietal cells are formed, which enclose in the middle a space either filled with spiral filament-cells or hollow spaces. These structures must be regarded as monstrosities of the spiral filament-organs, since they only occur in diseased conditions, and in individuals which never produce an embryo. Such a barren pro-embryo either decays soon after its origin, or, passing into a succulent state of growth, appears much larger than is natural. In this state it resembles a *Marchantia*, and usually produces a great number of abortive ovules."

Almost immediately after the entrance of the spiral filament into the canal of the pistillidium, and its supposed contact with the ovule at its base,—or, in other words, after the contact of the contents of the sperm-cell and the germ-cell,—a new cell is to be seen within the latter: we have thus two concentric cells, one enclosed within the other. In the progress of growth, which at this early stage is peculiarly rapid, a period arrives when the covering of the germinal vesicle can no longer be distinguished · up to this period the exterior of the two concentric globules is more deeply coloured with green than the interior one,—a difference which disappears simultaneously with the disappearance of their limits. The formation of cells now proceeds at both extremities of the embryo, by what our author calls "bipolarization." The embryo gradually assumes an elliptical form, its longest diameter being placed transversely to the plane of the pro-embryo, and of course comprising the axis of the future plant; its anterior extremity being finally developed as the first gyrate frond, the analogue of a plumule; and the posterior extremity or radicle tending towards the ground. The formation of new cells now goes on at the tip in a twofold manner: there is a feeble growth producing the stipes, and a more vigorous growth destined eventually for the production of the leafy portions of the frond. The author considers this elliptical embryonic body the direct result of the contact above described, such contact being a "true act of generation." The description of the mode in which the first gyrate frond is developed, and the figures which illustrate this part of the subject, are worthy of all praise: the execution of the latter leaves nothing to be desired, unless it be the confirmation of their accuracy by further observations. And here we would remark that a contributor to the 'British and Foreign Medico-Chirurgical Review' for October, 1849, speaks of finding Suminski's delineations to be so completely borne out by personal observation, *in certain instances*, that he gives the Count full credit for their accuracy, even where the opportunity of testing them was wanting. The paper in question is intituled 'Physiological Botany,' and displays an acquaintance with recent researches that is as creditable to its author as it is uncommon in journals of a semi-scientific character.

After completing his observations on the ascending extremity of the embryo, Suminski describes with considerable minuteness the formation of the root; but as this presents nothing remarkable or novel, we purposely refrain from introducing it into an inquiry of which it constitutes no essential element. The addition made by this learned author to our prior observations may be thus summed up: the discovery of a female apparatus or pistillidium as distinct from the male apparatus or antheridium, and its fertilization by the entrance of spiral filaments, spermatozoa or pollen-granules, which escape on the bursting of the latter. His observations on the marchantimorphous pro-embryo, and the origin of the first gyrate frond, were completely forestalled by Mac Vicar and Henderson, as were those on the antheridium and its spiral filaments by Nägeli.

K.

(To be continued.)

On the Allium Holmense of Ray. By P. B. Webb, Esq.*

When treating of the geographical distribution of the Allium Porrum and A. Ampeloprasum, *L.* (Phyt. Can. sect. 3, p. 344), the question arose,—to which of these species should we refer the Allium Holmense, &c., of Ray? Published in a work of such importance as the 'Historia Plantarum' of that author, this plant naturally attracted the attention of Linneus. In the first edition of the 'Species Plantarum,' as well as in the two subsequent editions, he alludes to it under A. Ampeloprasum, of which he says, "habitat in Oriente et in insula Holms Angliæ," without however citing Ray amongst his synonyms. Ray first described this plant in his 'Historia Plantarum,' 1688, as "Allium montanum majus, Newtoni: Radix nucleis aliquot majusculis constat Allii vulgaris in modum, tunica duntaxat suffusca tecta, quam facile exuit; de reliquo integra est et candida, multas, oblongas, validas fibras demittens: caules 4 pedes altus, et cæt. Aug. floret; in parva insula Holms dicta supra Bristolium in Sabrinæ æstuario copiose provenit." A few years later he introduces this plant, with corrections, into his 'Synopsis Plantarum Britannicarum' as "Allium Holmense sphærico capite. Great round-headed Garlick of Holms Island. Hujus descriptionem vide Hist. nostr. p. 1125, ubi radix ejus nucleis aliquot majusculis constare falso asseritur, est enim simplex et tunicata, duntaxat, cepæ in modum. In insula parva quadam Holms dicta in Sabrinæ æstuario copiose provenientem observavit D. Newton. Rai. Syn. 1696, et ed. 3, 1724, p. 370." Neither of these descriptions coincides with A. Ampeloprasum, *L.*, seeming rather to refer to A. Porrum, since almost the only tangible character which distinguishes this latter from its congener is the absence or paucity of bulbills. All the British botanists seem to have accepted the decision of Linnæus, and from Hudson downwards describe this plant as A. Ampeloprasum, some* adding from books or inspection of foreign specimens the characters of the southern species, particularly that of the botryoidal sack of bulbills, which assures the rapid propagation of the species, and renders it so troublesome a weed in the vineyards and fields of the east. Mr. Babington seems to have seen the plant, and to have made his description from native specimens: he says (Man. of Brit. Bot. p. 305), "Bulb forming 2—4 large offsets within its coats;" the rest of his description likewise coincides with A. Porrum. I am therefore inclined to believe that this plant cannot be referred to A. Ampeloprasum, *L.*, but is merely the A. Porrum escaped from gardens. That very accurate observer, Mr. Borrer, likewise supposes that the presence of this plant in the Holms or islands of the Severn is the result of former cultivation; but our forefathers were much more likely to have cultivated leeks there than the acrid and useless Ampeloprasum. I am aware that many botanists are disposed to consider the leek as a mere variety of Ampeloprasum: it is difficult to ascertain this with certainty, but my own observations lead me to place it amongst those numerous esculent plants whose origin is unknown to us. Should any of your correspondents be able to visit the "Steep Holms Island," and send you from thence specimens of this plant, the question might perhaps be elucidated: you should, however, recommend to those who may undertake the task to be sparing in the collection of specimens, so as to leave for posterity sufficient remains of a species which has probably occupied its present site for more than two centuries, and which was first described by the greatest of our ancient botanists. The investigation of the other habitat of A. Ampeloprasum given by Mr. Babington,—"Cliffs in Guernsey,"—would be also interesting, as I do not find the species enumerated in any of the floras of the western departments of France.

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* Extract of a letter to Hewett C. Watson, Esq.

P. B. WEBB.

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* See Smith's 'English Flora,' vol. ii. p. 134.

Contents of the 'Botanical Gazette,' No. 17, *May*, 1850.

A Descriptive Table of British Brambles. By T. B. Salter, M.D. [" Increased observation," writes Dr. Salter, " on the multiplied forms of these variable plants, both in the wild state and under cultivation, has enabled me in numerous instances to associate several forms together, as varieties of a single species, which before were described as distinct; thus in many cases confirming my previous suspicions, and in other cases affording results which I had not anticipated." . . . . . . " In plants so varying as the Brambles it is easy to divide, but by no means so easy to discriminate or associate correctly. These results can only be accomplished by careful observation." . . . . . . " In plants so varying, if the characters be too minutely given, few plants will agree with the description: the species must either be multiplied *contrary to fact and truth;* or varieties, inconveniently numerous, be introduced; for it is found that even in the descriptions of varieties some considerable latitude must be allowed, or they become endlessly numerous." Dr. Salter enumerates twenty-one species, exclusively of the Raspberry and herbaceous Brambles.]

Literature: Contents of various botanical journals.

Proceedings of Societies: Botanical Society of Edinburgh.

Miscellanea: Press for drying plants. Victoria regia. Obituary.

Ditto, No. 18, *June*, 1850.

On Viola canina and its allies. By Charles C. Babington, M.A. [" So much has been written in English journals concerning Viola canina, that it may seem altogether unnecessary to add to what has been well stated by others; but the unsatisfactory account of that plant and its allies which is contained in my 'Manual' (ed. 2, p. 36) having necessarily directed my attention to the subject, it may perhaps not be considered as intruding upon the notice of English botanists if I point out the characters by which I propose to define the species, and make a few remarks upon each of them." Thus writes Mr. Babington; but we believe that he deceives himself in the reason that he alleges. His attention was doubtless " directed to the subject" by the announcement of his own and the late Mr. E. Forster's printed errors respecting these plants, and by something very like a denouncement of their persistence in errors that had been publicly pointed out in the ‘Phytologist’ and elsewhere. Mr. Babington now distinguishes three species; namely, 1, V. sylvatica; 2, V. canina; and 3, V. stagnina. The first of these three includes the V. canina of Smith and other English authors, and the V. flavicornis of Forster in ‘Supplement to English Botany’: it is the “Gerarde's Violet” of Mr. Watson in the present volume of the ‘Phytologist.’ The second includes the V. flavicornis of Smith, and also the V. lactea of Smith united therewith as a variety: it thus corresponds with the “Dillenius's Violet” and “Smith's Violet” of Mr. Watson in the ‘Phytologist’ (Phytol. iii. 635). The third name is applied to a larger and longer-leaved species, occasionally mistaken for or mingled with Smith's V. lactea, and first alluded to, we believe, under name of V. stagnina, in the ‘Cybele Britannica,’ nearly four years ago. Although it may require some little alteration still, Mr. Babington's present account of these Violets is clear and satisfactory, and is now very near the truth or Nature's realities. To take up a remark from Dr. Salter, *supra*, he has at length almost *discriminated* them into real species, instead of *dividing* them into book-species, as heretofore.]

On Scrophularia nodosa, *L.*, and S. aquatica, *Auct.* (S. Ehrharti, *Stev.*) By T. Irmisch. [Translation from the ‘Botanische Zeitung.’ A short paper on their mode of growth.]

Critical Notes on British Brambles. By T. Bell Salter, M.D.

Literature: Andersson's Plantæ Scandinaviæ descriptæ et delineatæ. Reports and Papers on Botany, printed for the Ray Society, 1849. Contents of journals.

Proceedings of Societies: Linnean Society. Botanical Society of London. Botanical Society of Edinburgh.

Miscellanea: Letter of inquiry from Mr. Borrer. Unarmed variety of Ulex Europæus. Botanical promotions in Paris.

Contents of ‘Hooker's Journal of Botany,’ No. 17, *May,* 1850.

On the Structure of the Ovary of Marlea, and Affinities of Alangieæ. By Benjamin Clarke, Esq.

Contributions to the Botany of Western India. By N. A. Dalziel, Esq.

Extracts from Dr. J. D. Hooker's letters. Continued.

Botanical Information: Letter from Berthold Seemann. Mr. Spruce's journey. North-American Plants for the Herbarium.

Notices of Books: Paxton's Flower-garden.

Ditto, No. 18, *June*, 1850.

Extracts from Dr. J. D. Hooker's letters. Continued.

Mr. Spruce's Voyage up the Amazon River. Extract from a letter.

Botanical Information: Letter from Berthold Seemann. African Oak or Teak (*Oldfieldia Africana*).

Notices of Books: Thurmann's 'Essai Phytostatique du Jura.' Cacteæ in Horto Dyckensi.

Inquiry for the Celtic or other ancient names of the doubtfully native Trees and Shrubs. By HEWETT C. WATSON, Esq.

NOT previously aware of his arrival in England, for only a few days' sojourn, I was agreeably surprized by a call here from Mons. Alphonse De Candolle last week. In course of conversation relative to some questions in geographical botany, he spoke of the desirability of seeking out any evidence to be afforded by old Celtic names, in support of the genuine British nativity of those plants, particularly trees and conspicuous shrubs, which are now regarded with distrust. The inquiry would be one of considerable interest, but attended with difficulties. Sufficient acquaintance with Botany to prevent any confusion between different species would be requisite, together with a very ample knowledge of the old language or languages of our islands.

Hugh Davies's 'Welsh Botanology' professes to give the old British or Welsh names of several hundred species occurring in Anglesea; and the author adds also an Appendix to show "the British generic names of those phænogamous plants in 'Flora Britannica,' which are not of spontaneous growth in Anglesey." But among the plants of Anglesea, he includes the Beech and Chestnut; giving to them the "British" names of *Castanwydden* and *Ffawydden*, probably both derived from the Latin, or Castanea and Fagus. In the Appendix, too, the author has appropriated Welsh names to the Stipa and Vella, the Eriocaulon and Holosteum,—plants very little likely to have had any genuine Welsh names at all. Moreover, he states expressly that he admitted British names such as evidently were corruptions of the classic names, or taken from other languages. And when we find the "British" name of *Tiwlip* entered for the tulip, that of *Pysen* for the pea, that of *Linnea* for the Linnæa, there can be no doubt that the true British or Welsh nomenclature is diluted by Davies with names made up from those of other languages. This unavoidably detracts from the trustiness of his work in many cases, although it may likely be correct enough in the main.

Now, if a botanist could show that certain genuine Irish, Welsh, Scottish, or even old English names clearly applied to any of the trees and shrubs whose nativity is disputed at the present day, and were not applicable to any other resembling trees or shrubs, this sort of evidence would go far towards removing those doubtfully indigenous into the category of true native species; and it might also assist in showing how far the species were naturally spread in the British Islands.

HEWETT C. WATSON.

Thames Ditton, June 7, 1850.

New Habitat for Thlaspi perfoliatum.

By JAMES BUCKMAN, Esq.

AT Sapperton, near Stroud, the Great Western Railway passes along a tunnel named after the village. At the top of this, towards the north end, are some old quarryings, about which the plant grows in profusion: it also occurs towards the southern end of the top of the same tunnel, about old quarryings. Found by Mr. Ball. The occurrence of this plant in or about stone quarries is curious: it is found about Eyeford, near Stow, and at the Seven-springs, near Bourton-on-the-Water, in the northern Cotteswold district, and in each in and about old quarries.

J. BUCKMAN.

June, 1850.

Discovery of Orchis hircina in Suffolk.

By E. N. BLOOMFIELD, Esq.

MR. WATSON in his 'Cybele Britannica' expresses a doubt whether the Orchis hircina still exists in the British Islands, and mentions that in the case of several habitats which had been communicated to him as belonging to this plant, Habenaria bifolia or H. chlorantha had been mistaken for it. I think therefore that it may be interesting to give some further particulars respecting the Suffolk station of O. hircina which I had the good fortune to discover in July, 1847. I found but one specimen. The principal doubts which may arise are,—whether the plant was the true O. hircina; whether it grew in the locality given; and whether it was introduced. There can be no doubt that the plant was the true one, as it agrees with Smith's description in the 'English Flora,' and with a specimen in the Cambridge Botanical Museum; and indeed it is so different from any other English plant, that it is surprizing that any other could be mistaken for it. I showed it while growing and after it was gathered to several friends, and we all agreed, with Sir J. Smith, that the scent was "not pleasant," but very peculiar. There can be no doubt on the second head, because I found it myself, quite by accident. I can suggest no means by which it could have been introduced, at least from any great distance, and have no reason to doubt that it is a native. Perhaps it may be as well to mention that the meadow was laid down about fifty years ago, with seed brought from a village called Dennington, about six miles distant.

E. N. BLOOMFIELD.

Clare Hall, Cambridge.

Note on the Ovule of Orchis Morio.

By W. WILSON, Esq.

HAVING had my attention directed to this subject by the notice of Mr. Henfrey's paper in the 'Phytologist' for March last, I have carefully and minutely examined numerous ovules, in various stages of growth, with the following results.

When the ovule becomes completely anatropous, it is somewhat less than $\frac{1}{200}$th of an inch in length, the primine being then shorter than the secundine, though it afterwards far exceeds it in length. Soon after fecundation, the ovary having swelled, the pollen-tubes are found in very great abundance, passing down under the placentæ, in six dense fasciculi, to the base of the ovary. When these horizontal sections of the ovary are placed under the microscope, the masses of pollen-tubes are seen to fill up the channels formed by the incurved edges of the carpellary leaves. The diameter of the pollen-tube is somewhat more than $\frac{1}{3000}$th of an inch. By careful dissection of the ovule the pollen-tube can be satisfactorily traced into the orifice of the secundine as far as the nucleus; but the mode of connexion with that organ is very difficult to determine, as may be easily supposed when it is understood that the nucleus is a roundish vesicle of about $\frac{1}{480}$th of an inch in length, and that it is immersed nearly that depth in the secundine. After careful and repeated observation, I am of opinion that the extremity of the pollen-tube coalesces with the apex of the nucleus, but does not penetrate it: I have seen several cases of such connexion where the nucleus has remained uncovered, in consequence of the abnormal suppression of the growth of the primine and secundine, on parts of the same placenta which had the ovules in a normal state. The course of the pollen-tube may be traced with tolerable precision through the highly pellucid coats of the ovule, without dissection; but as it is always unsafe to depend on appearances until they have been verified by the removal of all intervening membranes, I have chosen to ascertain every fact by dissection, when practicable. I object to the expression, "nucleus covered by its own cellular coat," regarding, as I do, this cellular coat as an integral portion of the nucleus. The phrase, "embryo-sac had lost its proper cellular coat," also seems to me ambiguous. This cellular coat I suppose to be the external membrane of the nucleus, and if so, I consider that it is not obliterated, though it appears to be at length ruptured at the apex by the prolongation of the contained ovoid embryonic body (whether it be embryo or albumen, or both, is not quite clear) to afford egress to the articulated filament. While in its ovoid shape it is less than $\frac{1}{500}$th of an inch in length, with one or two horizontal septa. To detach it at this stage uninjured, it is requisite to employ very careful dissection; but immediately after it has begun to prolong its apex, it can be very easily made to slide up the secundine by gently pressing at its base, proving that the means of egress by that passage are already provided. The production of the confervoid filament is most certainly a normal process, and is easily observable. At the time when it begins to grow, the ovule is about $\frac{1}{40}$th of an inch in length, having the base of the primine somewhat inflated, leaving a hollow space below the base of the secundine, of about the same length as the secundine, or $\frac{1}{200}$th of an inch.

That the "pistillary cords" consist wholly of pollen-tubes with numerous abrupt sinuosities, is sufficiently evident; for they can be traced to the pollen-granules, and are absent before fecundation.

The "minute black atoms" of the nucleus appear to be small granules of starch: they are somewhat larger than active molecules, and have pellucid centres.

It seems to me a *begging of the question* to say that the "two or three vesicles" in the interior of the embryo-sac, or embryonic body, "undoubtedly existed before the pollen-tubes entered the foramina of the ovules;" at least, I can find no actual proof of this fact; nor is it at all clear to me that the unimpregnated nucleus of itself constitutes or contains any "germinal vesicle," if by that term is meant something which may develop into an embryo without any transfusion or addition of matter from the pollen-tube. It has still to be proved whether this vesicle does itself undergo such development, or whether it is merely the matrix within which the "pollinic fluid passing through the intervening membrane" is transformed into an embryo. Moreover, it is still possible that further scrutiny may show that there is an actual penetration of the nucleus by the pollen-tube.

It may be useful to contrast the ovule of this plant with the very singular one of Veronica hederæfolia, where, almost immediately after fecundation, the neck of the nucleus is protruded, and its forked glandular extremity firmly embraces the funiculus, forming in every sense of the word a *suspensor* to the body of the nucleus, which bursts out from its integuments and becomes a perfectly naked and much enlarged mass of albumen, in shape not very unlike that of a cowry shell, having the suspensor and the chalaza attached to the hollow part of the cup. The change of the ovule is so rapid that the mode of access of the pollen-tube cannot be observed.

W. Wilson.

Warrington, June 7, 1850.

A Visit to the Lily Field, or Narcissus poeticus in Warwickshire; and a Note on Narcissus lobularis. By the Rev. W. T. Bree, M.A.

Some years have now passed over since I was informed, on authority that I could not doubt, that Narcissus poeticus grew wild in great abundance in a certain field in the adjoining parish of Fillongley; and in proof of the correctness of such information, roots were sent to me from this locality, which have flourished in my garden ever since. Though often intending to go and see the "Lily Field"— for such is the appellation by which it is familiarly known in the neighbourhood— it, somehow or other, has so happened, that I never did pay a visit to it till the 5th of the present month of June, when the Narcissuses were in full bloom and beauty. And though very many of the flowers had been previously gathered by children and other persons who had been before me (for great numbers of people come every year to see the sight), I was truly gratified and astonished at the magnificent display of pure white blossoms which presented itself to view. A large portion of the field was one sheet of white,—an extensive snowdrift, so to say, in June! One might have thought that all the Narcissuses out of all the gardens in the county had been mustered together into this spot in order to make one grand exhibition. They grew in large dense masses; so much so as to overpower, and apparently almost obliterate, the grass and other herbage. I remarked to Mr. Smith, the occupier of the land, that beautiful as these flowers were, they must nevertheless be very prejudicial to his crop; but he assured me, he thought not, for he always observed, that at mowing-time he had as much grass where the Narcissuses were thickest, as in any other part of the field. I should describe the field as being a sort of upland meadow, and it is situated near — *too* near to please a botanist — to an ancient farm-house called Glaber's, or Glaver's Hall, about two miles west of the village of Fillongley. Botanists of the present day, I believe, are disposed to look upon Narcissus poeticus in the light of a naturalized species only, and to exclude it from the list of genuine natives. I am not going to controvert that opinion. Indeed, there are several suspicious circumstances, which, to my mind, militate against the notion of the Narcissus being indigenous in this particular locality, whatever it may be in other places. First, who knows but the "Lily Field" may be the site of a former garden or pleasure-ground attached to Glaver's Hall when that was a place of more consideration than it may seem to be at present? But this is only begging the question; at any rate, however, the field (as already hinted) is rather too near to the ancient farm-house, to be free from all suspicion on that score, being separated from the present garden only by an occupation road and an intervening portion of the farm-yard. Secondly, the Narcissus is confined to this one field, with the exception, however, of one or two small patches in the orchard, which nobody would take to be wild. It does not occur in other suitable situations in the neighbourhood, as a true native would be likely to do. And thirdly, a large portion, perhaps nearly half of the Narcissuses at Glaver's Hall, produce double or semi-double flowers, *i. e.*, flowers with one or more imperfect petals issuing out of the cup. At the same time there is no record or tradition of the field ever having been a garden, or of the Narcissuses having been planted where they are now found. But there they are, in surprising profusion, and have been time out of mind, and nobody knows how they got there. We may say with Antigone on a different occasion,

> * * * * * "these are not of to-day,
> Or yesterday, but through all ages live,
> And none knows whence they sprung."

Being on the subject of Narcissus, I feel inclined to call attention, through the pages of the 'Phytologist,' to another little-known species, which appears to me to have a fairer claim to be considered native. I allude to a perfectly distinct daffodil found wild more than twenty years ago near Tenby, in Pembrokeshire, by the late Joseph Boultbee, Esq., from whom I received roots which I have long cultivated in the garden. I have given this plant to many botanists and horticulturists, none of whom had any previous acquaintance with the species; nor have I ever seen it in any garden, nursery, or collection, except as derived from the above source. Not being, therefore, like Narcissus poeticus, an old and favourite inhabitant of our gardens, it cannot very well be a garden-stray or outcast, seeing it is quite unknown to our gardens till of late years, unless indeed it occurs in a cultivated state around Tenby; on which point I cannot speak. In 1830 I sent the Tenby daffodil to the late Mr. Haworth, who pronounced it a new and undescribed species, and recorded it in the 'Philosophical Magazine' for May of that year, and in his 'Narcissinearum Monographia,' under the name of Narcissus (Ajax) "lobularis;" and so far as I know, it is nowhere else described. I also sent fresh specimens to Mr. Sowerby, who afterwards showed me an admirable drawing which he had made of the plant, with a view, as I understood, to its publication in the 'Supplement to English Botany;' and why it has not appeared in that publication, I am unable to state. From Narcissus Pseudo-narcissus it differs in being a taller and more robust plant, the petals and cup being of an uniform bright yellow, and the latter divided into six lobes, whence its specific name of "lobularis." In its time of flowering, it ranks among the earliest of the tribe, expanding its blossoms sometimes in February, though more usually, perhaps, it corresponds with Shakspeare's

> "Daffodils,
> That come before the swallow dares, and take
> The winds of March with beauty."

I strongly recommend the Tenby daffodil to the notice of all lovers of floriculture, as a highly ornamental species, of free and hardy growth, and well worthy of cultivation, were it for its beauty alone, to say nothing of its rarity.

W. T. Bree.

Allesley Rectory, June 14, 1850.

Botanical Society of London.

Friday; June 14. Arthur Henfrey, Esq., V.P., in the chair.

The following donations were announced: — 'The Tourist's Flora,' by Joseph Woods, Esq., F.L.S., &c.; presented by the author. 'Fourteenth Annual Report of the Warwickshire Natural History Society'; presented by that Society. 'Proceedings of the American Philosophical Society'; presented by that Society. 'A Collection of Leicestershire Rubi,' to illustrate Miss Kirby's 'Flora of Leicestershire'; presented by the Rev. Andrew Bloxam. British Plants from Mr. J. Carroll, Mr. R. G. Holland, and Mr. R. Withers.

The Chairman read a paper "On Sagina apetala (*L.*), and S. ciliata, (*Fries*), with some remarks on the mode of discriminating species." After alluding to a paper by M. Beneken, published in the 'Botanical Gazette' for April, 1849, and another by Mr. Babington on the same subject, which appeared in that journal in July, 1849, the author stated that he had investigated many specimens of the plants, English and French, derived from his own collections and from the herbarium of Dr. Cosson, of Paris, together with an English example of S. ciliata named by Mr. Babington, and authentic specimens of S. patula (*Jord.*), from that author. The conclusion he had arrived at was that the S. ciliata, with which S. patula (*Jord.*) appears to be identical, as stated by MM. Grenier and Godron, is but a variety of S. apetala (*L.*). He had found the mucro on the sepals inconstant on the same plant, occurring on specimens with all the other characters of the form taken on the true apetala. The degree of divergence of the sepals in the fruit, he was inclined to attribute to the existence and size of the petals, which are persistent. The form apetala (which has petals and is usually ciliated) grows on drier and more exposed spots; the form ciliata generally in the shade, or damper situations. The author then drew attention to a plan for determining critical species which are at present so perplexing to European botanists, as he thought that by the aid of some of its country members the Botanical Society might do much towards settling the question in many cases. Regarding condition, such as aspect, climate, soil, &c., as the usual cause of variation, he did not look upon cultivation of a plant in artificially prepared land, in one place alone, as a satisfactory test of the value of characters, as artificial culture has rather a tendency to perpetuate varieties than to reduce them to their types. He suggested that a few, say six to twelve, botanists residing in as distant parts of the country as possible, should form an association for cultivating critical plants, all corresponding with a metropolitan botanist, who might cultivate here also, and who should receive from any source specimens of plants to be carefully preserved, together with seeds to be distributed to all the cultivators; these should make a return annually of specimens of the plants they have raised, with their remarks, and when a change has taken place seeds also to be re-distributed. By the help of a certain number of co-operators, one residing in the West of England, another in the East, another in the midland counties, others in the North and in the different climatal regions of Scotland, or if it were possible, by the help of a member residing in every one of the districts given in Mr. Watson's 'Cybele,' the doubtful forms might be exposed to every variety of condition, while the preservation of the original type specimens would render all the observations at once applicable as exact scientific evidence. If a number of provincial botanists will agree to carry on these observations, Mr. Henfrey stated that he was willing to take charge of the metropolitan part of the work, to receive and distribute the specimens and seeds, and also to cultivate them for the London climate in the garden of the Royal Botanic Society.—*G. E. D.*

Note on the return of Corollas normally Irregular to a Regular Form. By JAMES HUSSEY, Esq.

BELIEVING the return of the corolla of irregular flowers to a regular form, though occasionally observed, to be rare, the following instance may not perhaps be unworthy of being recorded in the pages of the 'Phytologist,' especially as the subject to which it relates, namely, the normal state of the floral whorls, is one of very great interest and importance in Botany. In a crimson and white garden variety, then, of Antirrhinum majus, I observe the two uppermost flowers upon one of the racemes to take the form known as "Peloria," the rest retaining their usual character. In both of these uppermost flowers the fifth stamen, which is usually rudimentary only and abortive in this genus, is, with its anther, fully developed, and in consequence apparently of its presence their corolla loses the ringent shape, and assumes a regular form, in one flower with five, and in the other with six lips, provided with their downy palates, leaving an open, central space in which lie the large, full-grown anthers. In what state of development the pistils may be, I am unable at present to determine, being unwilling to destroy these singular blossoms.

This remarkable condition of flowers, which are commonly irregular, was long believed to be peculiar to Linaria vulgaris, but according to De Candolle (Organographie Végétale, i. 519), has been noticed not only in other species of Linaria, but also in the genera Antirrhinum, Digitalis, Sesamum, Galeopsis, Viola, and Orchis. It would be interesting and instructive, should any of your readers meet with instances of this kind in those or other irregular genera, were they to note them and make them known in your valuable periodical.

James Hussey.

Salisbury, June 18, 1850.

Note on an Aberration in the Floral Envelopes of a Fuchsia.

By Edward Newman.

In this instance the organs present were as follows:—

1. Sepals four, of normal size and figure.
2. Stamens eight; four of them, greatly exceeding the sepals in length, arise from the exact centre of the base of the sepals, one to each, the other four exactly equalling the sepals in length, alternate with the first, and arise from the notches between the sepals. The stamens, indeed, are quite normal; the filaments white, untinged by any colour; the anthers of normal size, and pollinigerous.
3. Pistil of normal form and length.

The noticeable character is the entire absence of the interior floral envelope; not the slightest trace of this is visible. The plant produced no flowers differing from the one described.

A few queries arise for the morphologist to solve. First, How are the petals represented in this instance? Secondly, Supposing them converted either into the four shorter stamens or the four longer stamens, will there not then be a diminution of the aggregate number of parts? Thirdly, Is it a doctrine of morphology that in a species or genus in which all the parts of the flower are normally present, one series of parts may be totally absent and unrepresented?

Clarkia pulchella frequently has the same aberration; and Lindley says that in Skinnera, an allied genus, the petals are *always* wanting.

EDWARD NEWMAN.

Devonshire St., City, June, 1850.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 917).

Iris Pseud-acorus. By river-sides, in shallow ditches, ponds, and low marshy or moory meadows; abundantly in all parts of the county and Isle of Wight.

——*fœtidissima.* In groves, thickets, pastures, along hedges and borders of fields; extremely common in most parts of the Isle of Wight, but very rare on the mainland, excepting on or near the coast. Everywhere about Ryde, in Quarr Copse, Apse wood, &c. Profusely all over the Undercliff, to the verdant aspect of which in winter the tufts of dark evergreen leaves most materially contribute. Woods, &c., about Cowes, Yarmouth, Freshwater and elsewhere, abundantly. Frequent, if I recollect right, about Southampton, towards Netley, but I have not paid much attention to its distribution in mainland Hants, where it is far less plentiful than on this side the Solent, even on the coast. Not unfrequent in Hayling Island. About Porchester and Porchester Castle. Bitterne (near Southton), Rev. Messrs. Garnier and Poulter in Hamp. Repos. Fontley, Mr. W. L. Notcutt. Extremely rare about Winchester, Dr. A. D. White. In a lane betwixt West Meon and Privet, Miss Sibley. I do not remember to have seen it in the west of the county, as at Lymington, Christchurch, or in any part of the New Forest; nor have I any station to record for the northern or eastern quarters, although doubtless it occurs here and there in all parts of Hants. Var. β. *citrina.* Flowers of a uniform pale yellow. Of this most remarkable variety I met with a few plants in a wood near Yarmouth, in July, 1837, since which time I have never fallen in with it there or elsewhere. I long supposed my specimens to be unique, but the same variety has been found in Dorsetshire by Mr. Joseph Woods the year before last, and in greater plenty (Phytol. iii. 264). In my specimens the flowers were of a uniform lemon yellow, verging upon white on the segments of the perianth, without the least of the usual purple colouring, or any trace of the dark pencilling, except a few faint veins of a somewhat deeper colour than the ground. The still unopened buds were equally pale, but the plant possessed the smell and other characters of the species unaltered. This singular variety much resembled the yellow-flowered one of I. spuria, δ. *halophila* of Curtis, Bot. Mag. vol. xlviii. t. 1131. I. fœtidissima is a handsome species, less on account of the elegantly pencilled but rather small blossoms, than through the contrast of its rich evergreen leaves, of the deepest verdure, with the brilliant orange or scarlet, globose seeds, that remain very long attached to the widely spreading valves of the capsule, and together constitute a conspicuous ornament of our woods and hedgerows in autumn and early winter. The smell of the bruised leaves has been thought to resemble that of roast beef, and the plant has been complimented accordingly with the name of that national dish; by others the odour has been compared to rancid bacon,—dissimilar ones certainly, and indicative of the ambiguity of impressions received through the weakest and most deceptive of the senses: the fact is, that both are so far analogous as they are animal nidor. To myself the smell is by no means unpleasant, recalling merely that of milk heated till a pellicle has formed on the surface, or has been slightly burnt.

Crocus vernus and C. nudiflorus may possibly be found here, as well as in the meadows of central England: I believe from what I have seen of them there, that both are truly indigenous British species.

?†*Narcissus biflorus.* In woods, thickets, meadows and pastures, on hedge-banks and in orchards, on clayey, sandy or chalky soil, in several parts of the Isle of Wight and mainland Hants, but whether indigenous or naturalized I am almost equally at a loss what opinion to form; certainly introduced in some at least of its stations. On clay in a meadow near Hardingshoot farm, in some plenty, along with N. Pseudo-narcissus and Tulipa sylvestris; fully in flower, May 2, 1849. In fields on the west side of Gurnet Bay, near Cowes, in several places, but particularly about Hornhill Copse, where it grows in very considerable plenty on the grassy banks and borders of the fields, as also in the wood itself; in full flower, April 21, 1846. In several fields betwixt Wootton bridge and the church, but very sparringly scattered, 1842. A single very large tuft in a marsh meadow behind Gurnet Bay, 1843. A solitary plant in a sandy arable field by Marvel Copse, near Newport, 1845. A specimen or two found in Marina Wood at Apley, by Ryde; the late A. T. S. Dodd, Esq. !! In a little copse near Place farm, W. Cowes, May, 1846; Miss G. E. Kilderbee. Field by Debborne farm, W. Cowes, in some plenty; *Ead.* !!!—(a suspicious station). Gurnet Wood, *Ead.* ! In a field near Wilmingham, scarcely wild; Rev. James Penfold. On a hedge-bank near Thorley, far from any garden, but in very moderate quantity; *Id.* !!! I understand from Miss Clarke, of Yarmouth, that it grows very abundantly in a small field by the Yar, at the north-east angle of Thorley Copse, opposite Yarmouth Mill, as well as in the copse itself, 1846. Sparingly naturalized in a meadow nearly facing the stables at Steephill, Dr. G. A. Martin !!! On a sandy bank betwixt Rookley and Pidford, Mrs. Jones. In orchards near West Meon, Mr. Wm. Pamplin. In several meadows about Hensting and Owslebury, apparently wild (Mr. Earwaker); *Id.* in New. Bot. Guide.

How far the present species is indigenous to England it is very hard to say. It certainly occurs with us in places where it would be difficult to account for its introduction, and where it has perfectly the appearance of a native plant. The chief objections to receiving it as such are, its usually small quantity in any one station, frequently only two or three, or even a solitary tuft; and secondly, its not producing capsules, at least I have never seen them in any of the localities above recorded. The non-production of seed-vessels may, however, be habitual with this, as with many other plants of its order (Amaryllidaceæ), and even the following species, although an indubitable native, fails to produce capsules wholly or partially in many of its localities, whilst in others nearly every individual ripens seed. N. biflorus is evidently propagated by bulbs, as is seen by the clusters of them of all sizes on digging up the tufts of leaves and flowering stems, whilst the common wild daffodil is but sparingly increased in this way, and hence the plants grow singly or but few together, forming but small clumps or none at all. Allium vineale abounds in certain pastures in this island, and its nativity cannot be questioned, yet in no one instance have I been able to find a flowering specimen amongst the thousands bearing heads of bulbs alone. Tulipa sylvestris, which I hold to be a true native in many parts of England, rarely flowers even, and still seldomer seeds, if indeed it ever does; and I believe Fritillaria Meleagris, although a free flowerer, never, or very rarely, ripens seed in its native meadows. The same happens with

Ornithogalum and various other bulbs, and hence the objection is more apparent than real. The Primrose peerless is a common inhabitant of gardens, and unquestionably often escapes, or is carried out from them with manure or refuse into the fields, where, as might be expected in an indigenous species, it obstinately maintains its ground, but this will not account so well for its appearance in woods and places remote from cultivation, for like the following this is a sylvestral as well as a pratal and septal plant. We may indeed suppose the bulbs to have been *somehow* carried into such sequestered spots, or we may assume such spots to have been the sites of gardens in by-gone times, but in reasoning after this fashion we may refine away the claims of any species we please to consider an alien; such loose and illogical argument has done infinite harm already, being eagerly employed or acquiesced in by indolent or careless minds, that shrink from the labour of collecting and weighing evidence. But whilst we urge every fact that can in fairness be brought forward in support of the right of this or any other plant to be considered indigenous, we are bound honestly to state anything that makes against our advocacy. N. biflorus possesses nothing approaching to the power of occupancy in this county displayed by the wild daffodil, neither have I ever seen it like that in our remote woodlands, but only in thickets or copses in the more enclosed or champaign districts, and there, as before observed, for the most part sparingly, never carpeting the ground like the other. These differences may indeed be innate and habitual to the species; still it cannot be denied that they form grounds for objecting, not unreasonably, to the reception of the two-flowered Narcissus into the list of our undisputed natives. I think, however, that Mr. Watson has not done well in branding it as an alien in his valuable 'Cybele,' and omitting the comital census, for if not an aboriginal few plants are more thoroughly naturalized than the Primrose peerless, and the rank of *denizen* should at least, I apprehend, have been assigned it as nothing more than its due. Gerarde (em. p. 131) observes, "The common white* daffodil (his Primrose Pearles, No. 7, fig. p. 124) groweth wilde in fields and sides of woods in the west parts of England," as we know it does at present. It is said to abound in meadows around Dublin, and I remember to have observed the peasant children in Italy, when on my way from Rome to Florence, with large bouquets of this species, as ours might be seen with similar ones of N. Pseudo-narcissus. The smell of the Primrose peerless is very powerful, reminding one of the fragrant Magnolia glauca or grandiflora. The elegant Narcissus of the poets (N. poeticus) is partially naturalized on grassy slopes in the grounds of Norris Castle, by Cowes, but has been too evidently introduced there to find a place in the Hampshire Flora. It is very questionable whether this species be really native in any part of England; its most truly natural stations are subalpine meadows and pastures in Italy and Switzerland, &c.

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* White is printed wilde in the text, evidently by mistake, since the figure referred to is our N. biflorus, and is there headed as above, besides which Gerarde alludes to our other native species, N. Pseudo-narcissus, further on, as the common yellow daffodil (p. 133, fig. 2), and says (p. 134) it "groweth almost euerie where through England."

Narcissus Pseudo-narcissus. In moist woods, groves, thickets, copses, meadows, pastures, orchards, and on grassy banks; truly indigenous in many parts of the Isle of Wight, and on the mainland. Plentiful in Quarr Copse, especially at the end nearest the abbey and in the area of the abbey walls. Sparingly in Apley (Marina) Wood, and wood along the shore betwixt Ryde and Binstead. With N. biflorus in a field near Hardingshoot farm. Abundant in Firestone Copse and Chillingwood Copse. In considerable plenty in one part of Puckett's Copse, between Quarr and Ninham. On this station many of the flowers were concolorous, or having the segments of the perianth coloured like the crown or cup. In very great profusion underneath the rookery at Nunwell Field, by Guildford farm, near Haverstreet; also in a field by Ninham, and another by Coppid Hall. The above stations are all near Ryde, and mostly on stiff clay. Wood near St. Helen's, and covers acres of ground in Centurion's Copse, near Bembridge, which is perfectly carpeted with daffodils in spring. Covers the grassy slope of the mount on which Gadshill church stands on the north and east sides as with a sheet of gold. On bushy banks and slopes at Ventnor, behind the Ventnor Hotel, but not seen of late years. In Gurnard or Gurnet Copse, near Cowes, sparingly. Abundant in a little copse near Woodhouse Farm, Fernhill. Very fine, and in vast profusion* all over a wood chiefly of beech, known as Bottom Wood, occupying a valley between two slopes close to Sandford, near Godshill, on the south side of the village, and in a large pasture-field adjoining; also in several fields about Winson Farm. Hedge-banks and borders of fields along

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* Many of the plants here are concolorous or of an uniform golden yellow; the greater part, however, retain the whitish hue of the perianth. This is the N. Pseudo-narcissus, β. of Bertoloni, Fl. Ital. iv. p. 18 et 19, or possibly our var. γ.

the road at Sandford and at Appuldurcombe. Plentiful between the second and third milestone out of Newport to Godshill, and at Chillerton, Mr. G. Kirkpatrick!!! Near Swainston, Rev. W. Darwin Fox. Near Freshwater, Rev. James Penfold. Occasionally in other parts of the island. I have few localities to give for this plant on mainland Hants, because my correspondents have not furnished me with them, and the species flowers much earlier than I am in the habit of being in that part of the county myself;* I am certain, nevertheless, that it is quite frequent in Hants, perhaps as common over the water as it is here. I have seen it in fields near Southampton, and at Pilley, near Boldre, and found what I have no doubt were the leaves in a meadow at Nately, near Basingstoke, in May last, but the leaves die down so quickly after the flowers that the plant escapes detection by summer herborizers.† Meadows at Highclere and East Woodhay, J. B. in Cat. of Pls. of Newbury. With varieties (what varieties?) between Bishop's Waltham and Botley, left side of the road, within a hedge near a farm-house, Rev. E. M. Sladen (perhaps an escape from gardens only). Plentiful by the river-side near Christchurch, Pulteney. Var. β. flowers double or semi-double. N. Pseudo-nar. δ. Bertol. Fl. Ital. iv. p. 18. Here and there occasionally with the common single state, but very rarely, and seldom more than a specimen or two in the same station. A solitary clump in Centurion's Copse, amongst thousands of the single sort, and a very double, but certainly wild specimen on a bank near Yaverland, a few years since. More frequent in meadows and pastures near habitations, escaped from gardens, and then usually of larger size. Field near Bembridge Farm, in some abundance. Field at Woodvale, W. Cowes, and elsewhere, naturalized. In this wild double variety the perianth segments are always of a full yellow, like the cup or crown, and in this state I cannot distinguish it from the common great yellow daffodil of the gardens, although that is supposed to be a different species, the N. major of the 'Botanical Magazine,' and a native of Spain. The leaves of the garden daffodil are greener or less glaucous in gene-

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* In the extraordinary mild season of 1846, the wild daffodil was in full flower near Ryde soon after the middle of February, nearly a month before its accustomed time in this part of England.

† Clusius informs us that in his time N. Pseudo-narcissus "grew in such abundance in the meadows close to London, that in that celebrated village (as he calls it) of Ceapside (Cheapside) the countrywomen offered the flowers in profusion for sale in March, when all the taverns might be seen decked out with those blossoms." Rar. Plant. Hist. p. 164.

ral than those of the wild kind, but I think I have remarked considerable difference in this respect between individuals of the latter, and the character is one too slight to lay much stress upon, being probably dependent on circumstances of soil or culture. Var. γ. minor. concolorous, segments of the perianth nearly flat, but little spreading; plant smaller. N. Pseudo-narcissus, Brot. Fl. Lusit. i. p. 549, or N. Pseudo-narcissus, β. Bertol. Fl. Ital. (ut infra)? Plentifully on the high, steep and bushy bank behind Apse Farm, overlooking the garden, in which it also grows plentifully, though appearing rather to have descended to the grass plats beneath, than to have escaped from the garden in which it has not become double. Differs from the common state of the plant in having the perianth segments of almost as deep a yellow as the cup, much less spreading, nearly plane and scarcely at all twisted, narrower, firmer or less membranaceous in texture, rounded or somewhat obtuse, with a minute but very distinct apiculus. The whole plant, although variable in size, is much smaller than the common form, which last is, I have little doubt, the N. bicolor of Brotero, whilst our present variety is the N. Pseudo-narcissus of the same author, and, as the late Professor Don (to whom I showed it) thought, of Linneus also. It almost seems to connect our ordinary wild form with the N. minor of the gardens, but that is a very distinct and well-marked species, which is certainly not the case with the variety we are now considering.

The single wild daffodil, sharing the distrust so absurdly evinced towards almost all our handsomer native flowers, has been supposed of exotic origin, and to have been introduced by the monks in early times, from being so often found near the ruins of monasteries; but it is unquestionably indigenous to the south and middle of England, and to most parts of Europe between the Mediterranean and the Baltic, as far north as 54°, but scarcely higher, being wanting all over Scandinavia and (except in a few suspicious places) in Denmark proper. Here, it occurs profusely in the most sequestered localities, although in earlier ages, when our gardens could boast of but little variety, the more showy productions of our fields and groves would naturally attract attention from the horticulturist, and escaping from his care, be subsequently found established as often in the vicinity of his operations as in their more natural localities. The approaches to Ryde may be seen in early spring bestrewn with the simple yet elegant blossoms of the daffodil, dropped by chance or flung by caprice from the hand of childhood, just as I have seen the streets of Nottingham at the same season sprinkled with the lovely spoils of the spring crocus, waifs from the empurpled meads below. From their flowering about that time, daffodils are called in Hants and other parts of the country Lenten lilies, corrupted in some places into Lantern lilies. Daffodil, or, as Turner writes it, Affodill, is plainly a mere corruption of Asphodel, Asphodelus, *Ασφοδηλος*, a word applied to many plants belonging to this and allied natural orders, the Coronariæ of Linneus. The flowers of our common wild daffodil are reported to be poisonous; the bulbs, as in most of the plants of the order, are acrimonious, and it is said emetic.

The beautiful summer Snowflake (*Leucojum æstivum*) will very probably be found to inhabit this county. It grows in the adjacent ones of Berks and Dorset; in the former near Reading, and in the latter near Kingston Hall, as I have been informed by its finder, J. C. Dale, Esq. It should be looked for in moist meadows, by streams, &c. I found this species in universal cultivation in the gardens of Charleston (U. S.) as the snowdrop, and had some trouble to persuade the people there that it was not the true plant so called in Europe, which cannot endure even the winter of that sultry climate.

†*Galanthus nivalis*. In meadows and pastures, on banks, amongst brushwood, in groves, thickets, and hedges in close lanes, also (naturalized) in orchards and on grass-plats, &c. In several parts of the Isle of Wight, but scarcely in any where it is quite above suspicion of having escaped from cultivation. In great profusion on the steep wooded banks of Snowdrop Lane, immediately west of Gatcombe Park, between that and Ganson's or Gaskin's Barn; and in almost equal abundance at Gillman's, near Champion's; Mr. G. Kirkpatrick !!! In a little wood by the Yar, near Thorley, and its east bank below Freshwater Mill, in plenty; Rev. James Penfold !!! At King's Quay, *Id.* Banks by the road-side before coming to Chale from Blackgang, in great abundance; Dr. A. G. Martin. Field near Shorwell, Mr. Mark Taylor. I am told it grows in several places about Chillerton, and in various spots adjoining to Gatcombe Park. Naturalized under trees beneath the rookery at Nunwell; Mr. J. Lawrence !!! At the grove by Adgeton, near Brading (naturalized); the late Lady Brenton !! I find few memoranda amongst my notes of any station for the snowdrop on mainland Hants, yet I can scarcely doubt of its growing, either indigenous or naturalized, in many places therein. From its early flowering and quick disappearance afterwards, its haunts are in general known only to the resident, and not to the passing botanist, which in a great degree accounts for my ignorance of its distribution out of the island. Not uncommon ap-

parently about Twyford, near Winchester, but only seen by me there in suspicious places, as in the grove opposite Twyford House, and at Twyford Lodge, also in plenty all along a hedge adjoining the churchyard at Compton. Frequent about Hambledon, Miss L. Minchin. The snowdrop may be truly indigenous in some of its Isle-of-Wight stations, as that of Snowdrop Lane has greatly the aspect of a native locality; nevertheless, I am inclined to hold it rather as an introduced but perfectly naturalized species here, because I have never seen it in sequestered woods like the wild daffodil, or on old virgin turf or pasture land, as in many parts of England, where I believe it to be a genuine aboriginal. The parallels of southern and a great part of central Europe are the true zone of Galanthus,* or from 35° to about 55° of latitude, and therefore I do not see any excuse for those who refuse to admit its aboriginality on the score merely of its being a common garden plant, and often an escape from cultivation, as it would the more naturally and frequently be on that very account. In this island the snowdrop forms but does not mature capsules and seeds, at least I have never been able to procure them in a ripe condition: the rapid increase of the plant by bulbs quite accounts for this. The flowers have a faint but delicate fragrance not commonly noticed.

Asparagus officinalis. On sandy sea-shores; rare. On loose sand of the Spit at Norton, Freshwater, not in very great abundance, but much more plentiful now than it was some years back, when there were hardly a dozen plants to be seen. It must, however, have existed there for a great length of time, if it is the same station intended

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* It will be necessary for me here to explain what I understand by southern, central and northern Europe, since these divisions have been used in so loose and arbitrary a manner, that Britain is by some held to form part of the second, by others of the third division. The most obvious and natural partition will be to divide the entire latitudinal extent of Europe comprising 36 degrees (including Candia on the south), by 3, which gives us as many regions of 12 degrees each in breadth, which may be thus defined:—

Southern Europe	35° to 47°
Central Europe	47° to 59°
Northern Europe	59° to 71° 10′ N. Cape;

the medial line of the whole continent passing through lat. 53° 5′, or a little to the south of Dublin and Liverpool, which, if we adopt with some but two divisions into north and south Europe, will be the exact parallel of demarcation between the boreal and austral regions of our quarter of the globe, each comprising 18° 5′ of latitude.

by the authors of the Catalogue of Plants in the 'Hampshire Repository' (erroneously attributed to Pulteney) given below. It was subsequently noticed there by Mr. D. Snooke!!! A single plant on the shore at the mouth of the Wooton River, June, 1842. A few plants on the shore west of the houses at Ryde, Mr. W. Wilson Saunders!!! (Probably a garden outcast). At Christchurch and Freshwater, Isle of Wight, Rev. Messrs. Garnier and Poulter, in 'Hampshire Repository.' I remember to have once picked a specimen on the muddy shore near Southampton. Flowers often imperfect, the styles obsolete.

Convallaria Polygonatum. In woods and copses; a doubtful inhabitant of this county. Chawton Park, near Alton, Mr. J. Woods, Jun., in Bot. Guide. In May, 1848, I carefully searched the woods at Chawton for a whole day, but could not meet with this rare species. On applying last year to Mr. Woods for further particulars and directions to the spot, that gentleman stated that he had an indistinct recollection of gathering this species near Chawton, but that at this distance of time he could neither recall the locality to mind, or speak confidently with regard to the plant itself. Woods at Rotherfield Park, Miss Scott. Since, however, this Convallaria grows, it is said, in coppices about Alderbury, in the contiguous county of Wilts, (and is found in Kent, Somerset, and other southern counties), there seems no reason why it should not be equally indigenous to Hants. I remarked, whilst looking for the plant about Chawton, that small specimens of C. multiflora sometimes put on the aspect of C. Polygonatum, the leaves in such examples being broader and more erect (or parallel to the stem) than is usual in the former, where the leaves are commonly reflected in pairs from the stems, and stand conjoined like wings at a considerable angle to it, uncovering the latter throughout. May not this resemblance, which I found very tantalizing, often occasion C. Polygonatum to be passed by for the above form, or rather state, of C. multiflora, which is far from uncommon? I suspect this last may be the Polygonatum humile Anglicum of Ray's Synopsis, found by Mr. Philip Moore, gardener of Gray's Inn, in the woods of Wiltshire, according to Bobart, and by the same person in those of Hampshire, according to Morison (Hist. Plant. iii. p. 537), who says, on a view of specimens received by him from Hants, that it differs from the common Solomon's seal only in its smaller size and stature.

Convallaria multiflora. In woods, copses, groves, thickets, and shady pastures, both on the dry, chalky uplands, and in low, damp clayey or even wet situations; extremely common over a great part of the county, but with our other British species wholly absent from the Isle of Wight. In West Wood (or Weston Wood?), by Netley Abbey, at Mansbridge and elsewhere about Southampton. Common in woods at Langrish, Bordean Hill, Privet, Tigwell and elsewhere near Petersfield, also in woods about Bishop's Waltham, Alresford, Botley, Fareham, Shidfield, Boarhunt, Alton (Akender Wood and Chawton Park), Winton (at Twyford, Chilcombe, &c.), Pen Wood, Highclere, and Appleshaw. Woods about Bramdean, Withering. Under the walls of Silchester, Mr. Fordon in B. G. Woods by Bramdean, Doody. Generally dispersed, I believe, over the whole of Hants, with the apparent exception of the south-western or New-Forest district, in which I do not remember ever to have noticed it. Gigantic specimens occur here and there in our woods, three feet high, with stems as thick as swan-quills, and leaves and flowers in proportion.

Convallaria majalis. In woods, thickets and moist shady places; not found in the Isle of Wight, and far from common in mainland Hants, although I have good reason to believe that very few of its stations only are known to me. In a large hollow in Churcher's Island, near Wickham, and at Shidfield, Miss Chapman !!! Near Shidfield Common, in a copse east of the parsonage at the upper end nearest the road to Droxford, Miss Hawkins. I suspect this station and the last are the same. Abundant in Parnell or Parnholt Wood, near Farley, Miss A. M. Yonge !!! Dr. A. D. White finds it in more than one spot in this wood, where the flowers have stains of dull red or crimson at the bottom, as noticed by Mr. R. W. Smith, of Winton. Wherwell Wood, near Andover, Mr. Wm. Whale. Lord's Wood, between Southton and Romsey, in plenty, Miss L. Minchin. Pen wood (Highclere Park?), Cat. of Pls. of Newbury. Stony places on the common under Cæsar's Camp, 1844, Mr. W. W. Reeves (in litt.). I am told it grows in a wood near Holywell House, in the vicinity of the first station, called in consequence the Lily Wood, but I am not sure whether this and the two other localities of Wickham and Shidfield are not all one and the same: there is some confusion between them. At Shidfield, about a mile from Wickham, the lily of the valley is abundantly scattered over the copse in a damp sandy loam, but of very small growth, and hardly above one plant in fifty producing flowers. In Parnholt Wood, where it grows chiefly under beeches in dark friable soil, I found it still more shy of flowering, not one in a hundred producing blossom, but Dr. White finds it in abundant flower in other parts of that most extensive wood!!! Many other stations I have no doubt exist in the county, where,

> "Wrapt in verdure, fragrant lilies blow,—
> Lilies that love the vale and hide their bells of snow."

Ruscus aculeatus. In woods, thickets, copses, in bushy, heathy pastures, on hedge-banks and borders of fields; frequent. Very common in many parts of the Isle of Wight; plentiful about Ryde in various places, in Quarr Copse, Apley Wood, Shore Copse, woods along the Wootton River, &c. Very large and abundant in Gurnard Wood, by W. Cowes. Extremely plentiful in dry copses about Newchurch, as at Skinner's Hill, Hill Copse, Alverston Lynch, Bordwood, &c. Woods in the Undercliff occasionally, but not very common there, and much more frequent in East than in West Medina, preferring apparently the clay of the eocene or tertiary beds to either the chalk or greensand. Common in some parts of mainland Hants, and I think of universal distribution over the county. Portsea Island, and very common in hedges in Hayling Island. About Clayhall and Alverstoke, near Grange farm, and elsewhere in Stoke's Bay. About Southampton, not uncommon. Sowley and elsewhere in the New Forest; probably abundant in that district. In Anfield Wood (near Winton), near one of the principal drives, Mr. Wm. Whale. Amongst furze near Hasted, by Hursley, and on the Otterbourne road (from Hursley?), nearly opposite the corner where is the waterfall at the end of Mr. Chamberlayne's park, *Id.* Hurne (near Christchurch), Mr. Curtis in litt. and Brit Entom. xi. t. 489. The Salterns; Puxol lane; Gosport road; Hill Copse, Mr. W. L. Notcutt. Of this plant we have two principal varieties, but connected by intermediate gradations. Var. *α.* Leaves (or rather phyllodia), narrow, subelliptic-lanceolate. Var. *β.* Leaves broadly ovato-elliptical. Both these forms are about equally common, and are analogous to similar ones of the common myrtle. I suppose the var. laxus of Smith in Linn. Trans. and Engl. Fl. to be some slight deviation from the common narrow-leaved form, *α.*, with less erect branches than usual, but I find nothing in the station assigned for it (Stoke's Bay) at all differing from the species in its ordinary phases. The flowers of this species are in reality axillary, on peduncles several times their own length, running beneath the epidermis of the flattened branchlet or phyllodium, and appearing as if sessile on the disk of the latter, at or about its centre. Analogy with other species of the genus leads us to regard this subcuticular peduncle as the common stalk of a raceme, of which only one, or at most a pair, of flowers are developed at a time at its free extremity, the rest expanding as they are successively protruded, as is obvious from their production for a long time together from the same point, as well as from the remains of the pedicels and bracts, not to mention the nascent buds amongst which the later flowers are seated. The flowers are often produced as early as January if the weather be tolerably mild, and the large, cherry-like, bright scarlet and polished berries remain attached through the winter, making a fine appearance in the woods, but readily drop off when handled. Butchers are said to make use of it in some parts of England for driving away, and perhaps impaling on its excessively acute spines, the flies that settle on their meat and chopping-blocks. The more gentle of the craft with us are contented to deck their mighty Christmas sirloins with the berry-bearing sprigs, and it contributes at that season, with holly, misseltoe and other evergreens, to the decoration of our churches and houses. Its common name in this island is Knee Holm. The stems, though so hard and stiff, scarcely, I think, survive beyond the second or third year. The common Butcher's-broom is unable to resist a degree of cold much beyond that of our English winters, and therefore, like Tamus, its line of distribution is deflected towards the south-east upon the continent, where it is rather a plant of southern than central Europe.

†*Tulipa sylvestris.* In clayey or chalky meadows and pastures; very rare, and perhaps not really indigenous, at least to the only Isle-of-Wight station I know for it at present. In a large moist meadow on clay a little south-east of Hardingshoot farm, a few miles from Ryde, Feb. 25, 1846, just coming into flower. The plant here is in very moderate quantity, although apparently quite wild, occurring sparingly scattered over a rather limited area, associated with the single wild daffodil (*Narcissus Pseudo-narcissus*) and tolerable plenty of the Primrose peerless (*N. biflorus*). The meadow is on the (plastic ?) clay, but contiguous to the chalk formation at Nunwell, and hence the soil probably contains calcareous earth as a constituent in small proportion. One or two only of the plants flower, I believe, annually. Mr. Wm. Whale showed me at Andover a specimen of the wild tulip, which he had received from a lady who gathered it in the Isle of Wight, but no station was given on the label. It probably lurks undetected in some of our chalky pastures, pits and hollows, from the difficulty of seeing it excepting at a very early season of the year, before the leaves have died away, or the rather uncommon flowers are past. Plentifully in an orchard at Breamore (near Fording-

bridge), Mr. J. Hussey (naturalized probably). This is the only mainland station I have on record, but others less exceptionable will in course of time be discovered. I see no reason to doubt that the wild tulip is indigenous to Britain; in some parts of England it abounds in chalky pastures, and is the species appropriated to western Europe, just as T. biflora, altaica, &c. are to eastern Europe and Siberia, under our parallels. The sole cause for suspecting the Isle-of-Wight station is the fact of the meadow in which it grows being close to the site of a small farm-house, now many years destroyed, called Little Hardingshoot, but I have no evidence of the spot in which the tulip is found, or any other part of the field, having ever been garden-ground, nor is there the smallest trace of a garden visible at this day. I nevertheless consider it incumbent on me to state, in cases like the present, the remotest suspicion that may arise on the question of the spontaneity of any plant enumerated in our county flora: the ends of science can only be promoted by the unreserved communication of every doubt, however slight, and by holding with strict impartiality the balance of argument in which are weighed the claims of species to be called indigenous, not failing to declare when the beam inclines ever so little against us.

Fries tells us that the wild tulip so abounds in innumerable places in the Swedish province of Scania, as in early spring to cover the ground as if thickly sown with corn (segetis instar stipata), but rarely flowering and quickly withering away. He thinks geographical reasons opposed to its being truly aboriginal in that part of Europe (lat. 55½), but that objection does not apply to the south and middle of England, which is quite within the proper zone of Tulipa sylvestris, whatever may be the case with Scania. Fries observes that the plant was well known to Linneus a century ago, who, according to him, was disposed to hold it native there (haud advenam declaravit), Corpus Fl. Provin. Suec. Scan. p. 170. But Linneus appears to me to have held rather the contrary opinion, for he says (Fl. Suec. edit. 2, 106) "ex hortis non pridem aufuga," an ambiguous wording, since *pridem* means both lately and long ago, but in both senses the escape from gardens is directly asserted by him.

Fritillaria Meleagris. In damp meadows, pastures, woods and thickets; rare. Not found hitherto in the Isle of Wight. Sparingly in a moist meadow belonging to and opposite the residence of J. K. Jonas, Esq., about half a mile out of Bishop's Waltham, on the road to Gosport, Miss L. Minchin!!! Very sparingly in Tangier Park, near Basingstoke, Miss Orde, 1848. In all the woods round Strathfieldsaye (the Duke of Wellington's), on the northern limit of the county, but in more abundance in the park, Miss E. Sibley !!! Here the Fritillary grows by tens of thousands in the wet pasture and meadow land, scattered over a vast acreage of the park, but most abundantly towards the north-west end, and in the wet meadows beyond it, on the other side of the road (I believe in Berks, or in an outlying portion of Wilts). The varieties with purple and white flowers occur in pretty nearly equal proportion, and in a swampy thicket at the north end of the park I gathered most luxuriant specimens eighteen or twenty inches high. It has been long known to grow near Reading, in the conterminous county of Berks and only a few miles from Strathfieldsaye, and two other stations are given for it in that county in the 'Catalogue of Newbury Plants' several times referred to in these Notes. I have not ascertained that the species grows in all the woods about Strathfieldsaye, and believe my friend speaks from the report of others, but it certainly does grow in wet thickets there, and from what is recorded of a station further on it would seem to be a sylvestral as well as a pratal plant in Hants. At Bishop's Waltham, Mr. Jonas tells me, the children gather the Fritillary for their May-day garlands, yet, in proof of the incurious nature of the Hampshire peasantry, I could not find any one at Strathfieldsaye who knew its name; some called the plants snowdrops (the white variety), others daffodils, whilst the rest pronounced them to be cowslips! The station at Droxford given in this journal (Phytol. ii. 998) I understand since to be erroneous, or at least doubtful. "Said to grow in Marvel Wood (near Winton ?), but I have searched more than once for it without success," Dr. A. D. White (in litt.). So elegant a plant as the Fritillary, and one of so unusual an aspect and comparative rarity, could not of course escape suspicion of being an imported foreigner with that rather numerous class of persons who appear to think Cowper's "fields without a flower"* no poetic amplification of the comparative deficiency of our British soil in the choicer productions of the more favoured climates of France and Spain. But here, as in other instances, their incredulity is founded on misapprehension of the true nature and geographical range of the species. Beauty of form and colour are so inseparably connected in our minds with warmth of climate, because we see both developed in the highest degree where the influence of such climatic condition is greatest, that we are apt to assume the latter to be in all cases indispensable to the production of the former, and to conclude that every plant, endowed with those attributes of gracefulness of form or richness and variety of hues above its fellows in the field, must have migrated from a climate in which alone we fancy plants so attractive could have originated spontaneously. We may excuse the non-botanical world for making that absolute and unexceptional which as a general proposition holds true in the main, and only smile at their crude speculations and traditions to account for the presence of certain southern types of vegetation which mingle in our flora with the predominant and more northern forms;* but it does seem surprizing to find botanists who have the means of comparing the vegetation of our own with that of adjacent countries continue to suspect or reject, because their forefathers suspected or rejected, plants evidently proper to our zone and climate. Many tropical genera, as Passiflora, Dioscorea, and even tropical families, as palms, have one or more outlying species that extend far into the temperate zone, and the same holds good with plants having their chief seat in the south of Europe, species of which extend into central or even northern Europe; such are Narcissus, Muscari, Gladiolus, Iris, Daphne and many more, all of which have representatives in the middle parallels of our continent, and why not equally in Britain? I do not mean to say that every such outlying or northern species when found in Britain must forthwith be set down as indigenous, because its natural limits in other European countries are under a latitude as high as our own, for it is well known that plants have their distribution governed almost as much by longitude as by latitude; but this I do mean to assert, that when a species is discovered in reasonable abundance in this country which is known to inhabit a nearly or equally high latitude on the continent, and occurs here in situations perfectly analogous with those it affects abroad, unless some good cause can be shown why it is not likely to be indigenous, such as the vicinity of gardens, or proof of recent importation, &c., it does strike me as an absurd and needless refinement in scepticism to refuse such species the full acknowledgement of citizenship. I will give what I consider an instance in point. The starch hyacinth (*Muscari racemosum*) is set down by Mr. Watson in the 'Cybele' as an alien, without a query expressed, and with the omission of the usual comital census. Mr. Babington marks it in the 'Manual' as a doubtful, and Sir Wm. Hooker as a certainly introduced, plant. Now why should this be so ?—Muscari racemosum is found in sandy fields and grassy places throughout southern and central Europe, in the west as well as the east in Belgium, France, Germany, &c., being the most common and northern species of its genus. I gathered it in April, 1835, in profusion over a great extent of sandy ground, and in fallow-fields at Cavenham (pronounced Canham), eight miles north-west of Bury, in Suffolk, between that town and Mildenhall, where it is certainly native and quite a weed in that neighbourhood, and I was told at Pakenham and Hengrave likewise. See also E. Gillingham's 'Account of Bury,' 1804, p. 288. Now upon what principle do those act who doubt or reject this plant as belonging to the British Flora ? Upon none that I can imagine, except that it is rare, or rather very local, in this country ; that being a frequent object of cultivation as an ornamental flower in British gardens, it is *assumed* to have become naturalized from that source, and lastly, from a vague, unquestioned opinion that it is a species proper to the south of Europe, and therefore not likely or even possible to be indigenous with us. For my own part, I am fully persuaded Muscari racemosum is a genuine native of the east of England, and that the very long known station on the earthy ledge of the old city wall of Norwich is a natural one. As to the objected silence of old authors on this and other modern additions to the British Flora, I have before shown (Phytol. iii. 622) how untenable that argument is and irreconcileable with fact, for once admit it, and what becomes of the claim of such undenied and undeniable British plants as Lobelia urens, Erica ciliaris, Briza minor, Euphorbia hyberna, Trichonema Columnæ, and many besides, that from their local distribution escaped notice in England up to a late or comparatively late period ? I have also shown, under Campanula (Phytol. iii. 129), how plants of a continental or eastern distribution become scarce or local in westerly and insular countries, or fail there altogether ; but that is no reason why they should not, as we see they do, occur partially and sporadically in such regions, or for our refusing to own them for natives when found. Now let us see how the case stands with the more immediate subject of these remarks, the Fritillaria Meleagris. This species needs not so much defence against the sceptics as some others, being pretty generally recognized as a native at the present day by our leading botanists. Still there are dissentients, or those inclined to be so. Mr. Watson, in 'Cybele Britannica,' wavers somewhat yet. No one, I think, who has seen the Fritillary in many of its English habitats could reasonably doubt its nativity, but we will take up our old position and tower of strength in the geographical distribution of the genus. The Fritillaries have their chief seat in the northern temperate zone, either on high mountains towards the south, or in low plains, at or near the sea level, towards their northern limit: they are, in fact, plants of cool and even cold climates. We find under our own parallels, or between fifty and sixty degrees of latitude, species of the genus appropriated to every part of the world. In Europe we possess F. Meleagris all over the west, ranging in Norway and Sweden to about lat. 60°, and eastward to the confines of Asia, where, in Siberia, it is replaced by F. verticillata and F. minor (Ledeb. Fl. Altaica), and at the furthest eastern extremity of that continent in Kamtschatka, and on the opposite western shores and isles of America by F. Kamtschatcencis and F. lanceolata (Hook. Fl. Bor. Am.). These species, like our own, inhabit the plains and low grounds, and are strictly the analogues of F. Meleagris in their respective countries.

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* Task ; the Time-piece.

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* Many plants common in the south and west of England, such as Erica ciliaris, Agrostis setacea, Briza minor, Rubia peregrina, Gastridium lendigerum and Tamus communis, are in fact more truly southern species than most of those which it is the fashion to suspect as aliens, but then they have not the misfortune, like these, to be objects of cultivation for their beauty or other qualities, as in the case of such really more northern plants as the hop, mezereon, Martagon lily, our two hellebores, columbines, &c., which have all some enemy or other amongst British botanist to invalidate or deny their title to citizenship.

†?*Lilium Martagon*. In woods, copses and thickets; very rare. Not known in the Isle of Wight. Discovered about fifty-six years ago by Capt. Charles Robinson, R.N., late of Swanmore Cottage, near Bishop's Waltham, now of Greenwich Hospital, in a wood near Durley. Capt. R. obligingly communicated to me the following particulars in a letter from himself, dated July 26, 1848:—"It is now many years since I discovered the Martagon in some abundance in the large wood on the Durley estate, called Durley Wood, through which a small rivulet passed and ran into the river running (into?) the pond at Bishop's Waltham, opposite or nearly so to Calcot House, then the residence of — Clewer, Esq., of Botley. Many specimens of this plant have since been obtained by others from the same locality; whether there are any at present I really cannot (say), since .... * it being now full fifty-four years since I first discovered it in the before-mentioned wood." Last summer I searched in Durley Wood for the Martagon lily without success, but time did not then permit of more than an imperfect examination of the wood, which is very considerable in extent and irregular in form: I trust to be able to renew the search for this fine plant, and hope others residing near or visiting Bishop's

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* I cannot decypher some few words in Capt. R.'s letter.

Waltham may be induced to assist me in again bringing it to light. Its usual place of growth, amongst thick brushwood, often veils it from the passer-by even when in flower. Whether the Martagon Lily is really indigenous in Durley Wood, or simply naturalized, I cannot pretend to say, but in most parts of that wood, were I to meet with the lily in any quantity, I should judge it a natural locality, disposed, as I am, to contend for its claim to be held a true native of the east and south-east of England. In support of this view, I take the precise line of argument employed in the case of Daphne Mezereon, and therefore need not recapitulate all that has been said by me on that and other disputed species. I look on the claims of the Mezereon and Martagon to be as nearly the same as can be; the sole objection that I have to urge against the admission of both into the list of acknowledged natives, being the failure of each of these plants towards the coast countries of the west of Europe and in the meridians of the British Isles. Otherwise their distribution accords here with their dispersion on the continent, for both inhabit the same parts of central Europe from the western confines of Germany across the entire continent into Siberia. Towards the south, Lilium Martagon is an inhabitant, like most of the genus, of subalpine woods, but descends into the plains or to low elevations in the middle parts of Europe and Asia, growing in copses and bushy places precisely as with us. It seems to be absent from Belgium proper and from the north-west of France, but is indicated by Von Hall (Fl. Belg. Sept.) as found in the wood of the Hague, and possibly spontaneous there. Fries (Corp. Fl. Prov. Suec. Scan. p. 169) gives it as abounding in pratal thickets (*dumetis pratensibus*) at the foot of hills in one or two places in Scania, and remarks that in Germany it is truly indigenous wherever there are primitive mountains, nor will he deny the possibility of its being native to Sweden also. L. Martagon is indeed the most common and widely diffused species of the genus in Europe, and if not strictly (as, however, I am inclined to believe) an aboriginal Briton, it is yet so thoroughly naturalized, and its stations are now so numerous, that it is deserving of better treatment than to be put upon the alien list, and, as if a casual stray from the garden merely, deprived of its rank of denizen and privilege of comital representation in the 'Cybele Britannica.' This species of lily has been in cultivation universally since the year 1596, and in all probability long before that time. Supposing it to be merely naturalized with us, it is highly improbable that it should have become so only at a later day, and hence it must have existed, as at present, in many of our woods without being observed, for perhaps a couple of centuries or more. Most of the recorded stations are of very recent date, but it is said to be mentioned as found wild in Yorkshire so long back as 1770, or thereabouts, in Hull's 'British Flora,' a work I have not myself seen. In the Turk's-cap Shaw at Woodmanston, about one mile from Banstead and four from Epsom, in Surrey, where I gathered it in profusion, July 5, 1835, and communicated specimens, from which the beautiful figure in E. B. Suppl. iii. t. 2799, was made, no plant could have a more perfectly indigenous aspect; and it appears, I am told, equally so in other parts of that county, and in Kent and Essex. Gmelin (Fl. Sibirica, i. p. 44) says it abounds throughout Siberia to Ochotsk, lat. 59½, and Kamtschatka. This last peninsula, lying under the same parallels as Great Britain, resembles Newfoundland in its climate, and like that island is infinitely colder at all seasons than England, the summers in both being extremely moist, chilly and variable, snow lying at the sea-level in the harbour of St. Peter and St. Paul very commonly till the middle or end of June.*

Obs.—Simethis bicolor, very recently discovered on moory ground about two miles west of Bournemouth towards Poole, but within the Dorsetshire boundary, it can hardly be doubted, will be discovered ere long on the Hampshire side of that vast heathy tract called the Poole Basin, which is as remarkably uniform in its botanical as in its geological features. I visited the station, which is very close on the borders of this county, by Mr. Borrer's directions, in October last, and found the dried remains of the leaves, stems and flower-stalks. Its detection still more recently in Ireland fully confirms it as a genuine native of Britain, and leads us to hope that it will ultimately prove indigenous in many parts of the south-west of England. Anthericum ramosum and perhaps A. Liliago ought, one would suppose, to grow in England. The former especially is widely spread over Europe, and is frequent in the north of France, and in most countries of the continent to Denmark and Sweden.

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* The mean heat of the three summer months at St. John's, Newfoundland (lat. 47° 34′), is below that of Edinburgh (lat. 55° 57′), and the other seasons are colder in a still greater degree. I have myself seen ice in huge masses on the shore of the extreme south point of Newfoundland in the middle of July; and the climate of St. Peter and St. Paul, in Kamtschatka, from its higher latitude (53° 10′) and extreme eastern position (long. E. 159° 30′) is still worse than in Newfoundland; for although far less rigorous than that of Siberia in winter, it is miserably deficient in positive warmth at all times of the year, like southern Patagonia. Yet does Kamtschatka produce many very fine plants of the natural orders we are now treating of, in Lilium,

†?*Ornithogalum umbellatum.* In meadows, pastures and thickets; rare, but I see no great reason to doubt its being truly indigenous in Hampshire, although unquestionably most frequently seen as a garden outcast, or at least in spots open to suspicion. Meadows about Steephill in several places, appearing to be truly wild, Mr. Albert Hamborough and Dr. G. A. Martin !!! A few plants found, June 13, 1845, in Calbourne New Barn, Hummets, apparently quite wild. In a pasture by Afton House, Mr. G. Kirkpatrick (indigenous ?) !! Naturalized on the lawn behind Osborne House, and in all the subjoined stations in a very questionable condition as regards nativity. In Northwood Park, Miss G. E. Kilderbee, but rarely flowering, and too near the shrubbery !!! In an artificial grass field at Newchurch, in tolerable abundance, but on the site, some thirty years ago, of cottage gardens. I have found it in similar unsatisfactory situations elsewhere in the island. "Found at Bullington," Rev. D. Cockerton, the only station I find amongst my notes for this plant on the mainland of the county. Called "Wake-at-noon" in this island. O. pyrenaicum probably grows in the woods of this county, since it has been found in the adjacent ones of Sussex, Wilts, Berks (Cat. of Pls. of Newbury), and I think Dorset. In Somersetshire the Miss Sibleys have found O. pyrenaicum growing five and six feet high! I have never seen it much exceeding a foot or two in woods at Bath, where, during my residence in that city about sixteen years ago, I have seen the young shoots sold in the market instead of Asparagus. O. nutans is likely to be naturalized in some parts, and Gagea lutea may occur with us as well as in Oxfordshire.

Scilla autumnalis. In dry sandy or gravelly pastures, and on rocks by the sea; very rare. In great plenty on the sandy pasture-ground of the Spit or neck of land below St. Helen's, that stretches across the entrance of Brading Harbour. Priory, Isle of Wight, Mr. J. Woods, Jun., in Bot. Guide (possibly the same station as the last).

Fritillaria, Ornithogalum, &c., proving that there is no inseparable connexion, as people are apt to suppose, between beauty of form and colouring, and geniality of climate. We should disregard this too prevalent opinion in discussing the indigenous origin of plants, and be guided by the type they present, and the geographical distribution of the orders, genera and species they severally belong to. A most remarkable instance of the prevalence of richly-coloured and extremely tropical forms of vegetation, under a constantly cool and sunless sky, ever dripping with rain or fog, is graphically given by Dr. Hooker in his account of Sikkim Himalaya, in the 'Journal of Botany' for February, 1850, pp. 58, 59.

In the former place it seems to have been first noticed by Mr. W. D. Snooke, and may be found annually, for the most part in plenty, and in some years even profusely. These are the only Hampshire localities I am at present acquainted with for this rare and pretty little Squill. Leaves seldom produced with the flowers or coetaneous, at least not fully developed till the latter are past, and sometimes not even then.

?*Scilla verna.* On rocks, cliffs, pastures and grassy slopes near the sea, but extremely rare, if it was ever found at all in Hants. "Near Newport, Isle of Wight," Rev. Messrs. Garnier and Poulter in Hamp. Repos. Brading, Dr. Bostock in Withering's Bot. Arrang., 7th edit. The authenticity of the latter quotation was kindly confirmed by Dr. Bostock, in answer to an inquiry made on the subject by Dr. T. Bell Salter, in 1839. Dr. B., I believe, exhibited specimens before the Linnean Society, or at least to some of its members, I forget which; still it is possible that between two species so nearly resembling one another a mistake may have been committed. Were it not that the existence of Scilla vern aas an Isle-of-Wight plant rests on such respectable authority, I should be inclined to exclude it from the Hampshire Flora, having never succeeded on repeated trials in finding it on either station, or heard of its rediscovery by others. Although common enough on many parts of the western and north-western coasts of Britain, from Cornwall to the Shetland Islands, and on a few spots along the north-eastern shores as far south as Northumberland, there are no recorded localities for it on any intermediate point of the extensive coast line between the two English counties just named, unless the unconfirmed stations in this island, and one or more equally doubtful habitats in Devonshire, be excepted. The wide difference in the flowering seasons of these Squills is the chief difficulty in the way of supposing a mistake to have been made between plants otherwise much alike. It may be well to remark, that I do not find S. autumnalis on either station assigned to S. verna, which lessens in some degree the suspicion of any such error. I should never be surprized to hear that Scilla bifolia had been rediscovered in England, but should expect it rather in the eastern than the western parts.

Allium vineale. In meadows, pastures, waste grassy places, and borders of fields; not, I think, uncommon, but often, I imagine, overlooked, from its seldom or never flowering with us, which may induce some doubt at times, even with respect to the species being the same in all the subjoined stations. At Steephill and other parts of Undercliff occasionally, as Pelham Woods, &c. Abundantly in Northwood Park, where, in one place, the turf is quite covered with its leaves, but no flowers are produced. Frequent on the east bank of the Medina, below Newport, near Fairlee House, Mr. G. Kirkpatrick !!! Culver Cliffs, Rev. G. E. Smith !!! (see A. oleraceum). I have found it occasionally in other parts of the island, but never in flower, and for this reason I have omitted noting down the localities, feeling uncertain whether some other species might not have been mistaken for it by me. We share, of course, in Hants the general poverty of Britain in the species of Allium, which are far more numerous in the south and south-east, than in the western parts of central Europe. On the mainland A. vineale, or what I guess to be such, abounds on Magdalen Hill, near Winchester, and it is probably only this, and not A. Schœnoprasum, which has been indicated to me as Chives, growing in Hayling Island, by the Rev. Charles Hardy. I do not, however, mean to deny the possibility of that very local plant being a native of our county, but I have, as yet, seen no specimens from Hayling.

Allium oleraceum. In similar places with the last, but scarcely well proved to inhabit this county. The Rev. G. E. Smith believes he found this species on the *débris* of the green sandstone in Sandown Bay. I have two specimens of an Allium gathered in this bay in 1839, by a servant, and sent to Miss E. Kirkpatrick, the leaves of which are very narrow, with close cylindrical sheaths, and appear to have been plane when fresh; the head of bulbs is very compact and spherical, but the flowers had quite fallen. The crest of the sandstone cliffs near their junction with the chalk of Whitecliff Bay, is fringed for some distance with quantities of an Allium which I suppose to be chiefly A. vineale, but invariably producing only heads of bulbs without blossoms; but both here and on the banks of *débris* in the bay below, specimens occur with semi-cylindrical leaves grooved above, but not rough as Smith asserts of A. oleraceum; the want of flowers puts it out of my power to decide with certainty to what species it belongs, the species of this genus being very difficult of discrimination by their leaves alone.

Allium ursinum. In moist shady woods, groves, thickets, on damp hedge-banks and grassy borders of fields; rarely with us in open meadows and pastures; far too abundant in many parts of the Isle of Wight, and probably not rare in the county generally. Most common in woods over the chalk or on the greensand. Plentiful in Centurion's Copse, near Brading, and in enormous quantity over nearly the whole of Greatwood Copse, near Shanklin, as well as extremely abundant in all the other woods betwixt Shanklin and Bonchurch, in Hatchet Close and Cowpit Wood, &c. Excessively rank and profuse in the high enclosed wood in Appuldurcombe Park, and equally so about Gatcombe, under the trees in the wilderness or rookery. About Shorwell, as at North Court, in the dell or hollow in which the mausoleum stands; in patches of copse about Cheverton farm, Idlecombe, &c. Most profusely in Lorden, Barkhams and Bakerswood Copses, betwixt Carisbrook and Shorwell, here, as in many other places, perfectly concealing the ground to the utter exclusion of every other plant excepting the no less gregarious and usurping Mercurialis. Common in Swainston woods and about Calborne, abundant in woods at Rowledge, and in fact in every patch of copse and thicket on the southern slope and foot of the central chalk range in Westridge, Sluccombe, Dewcombe Copses, &c., much too plentifully. Grounds at Norris Castle, and in Barton Copse, near Osborne, abundantly, as well as in other parts of the island occasionally. Either it is less common on the mainland of Hants, or it has escaped my notice from the disappearance of the leaves early in summer, as I have at present only the few following stations to give: Longwood, Miss L. Legge; Warnford, Rev. E. M. Sladen; Near Soberton Mill, Longwood, Rev. Messrs. Garnier and Poulter in Hamps. Repos.; Fontley; bank near Wickham road, Mr. W. L. Notcutt; in Hawkley Hangers, near Selborne, June, 1850.

This plant is an abominable annoyance in our island woods in spring and early summer, soon after which the leaves and scapes die down, and cease to offend the botanical explorer by the rank odour of garlic they exhale. Some of these woods are so completely filled with it, that in looking along the ground, beneath the trees, one beholds only a uniform mantle of its leaves, which are often more than a foot in length and nearly four inches wide, and so effectually exclude the light from the soil below them, that nothing springs up to relieve the rank monotonous exuberance of the repulsive herbage, the odious scent of which, the profuse array of starry blossoms cannot make amends for. In close damp weather an insufferable garlic smell infects the confined air by direct exhalation from the plant, and which is increased as it is trodden down and broken in passing through the almost knee-high foliage. Its presence in woods, however, is innoxious compared with its intrusion upon pasture land, as is too often the case in other parts of England, to the great detriment of all dairy produce from fields so infested. Fortunately for our farmers and graziers, the Bear's Garlic will only thrive here in damp and perfectly shaded situations, and is a sylvestral, scarcely a pratal species. Besides Ramsons, it is here called Gipsy Onion, as forming it is said an article in the strong diets of that singular race, whose picturesque encampments, once numerous in this forest country, are now comparatively few. Nearly allied to our Ramsons is the A. tricoccum of N. America, but in that species the leaves die off before the flowers are developed, which is not till June or July. The bulb also appears to be ovoid and acuminate, not as in our plant, elliptic oblong, equally thick at both ends. Both exhale the same detestable smell when drying for the herbarium.

Agraphis nutans (*Hyacinthus non-scriptus*). In groves, thickets, copses and on hedge-banks, as well as in damp open grassy places, meadows, &c., most profusely abundant throughout the county and Isle of Wight. Var. β., flowers white, occurs here and there occasionally as single specimens, but always very sparingly. In Quarr Copse, St. John's Wood and elsewhere about Ryde, now and then. Not unfrequent in woods about Shanklin. An example or two with pink or flesh-coloured flowers has occurred to me in this island, but is extremely rare. This beautiful and familiar plant, more common in Britain than in any other country of Europe, to the western parts of which it is exclusively confined, goes here by the name of Blue-bottle, doubtless from the ventricose form of the flower contracted and reflexed at summit.

Obs. Muscari racemosum, the Starch Hyacinth, may be looked for in the sandy fields and pastures of this country with good probability of success. It is reported in the adjoining counties of Dorset, Surrey and Berks; in the last, near Newbury according to Dr. Lamb, a town close upon the Hampshire boundary, and the station may even be within our own limits. The sandy tracts between Petersfield and Farnham, and about Wolmer Forest, are amongst the most likely to yield this species, which I am persuaded is a genuine native of eastern England, as I have lately endeavoured to show, nor should I be surprised to hear that M. comosum or M. botryoides had been found wild in this country, being both coextensive in their range with the other on the continent.

Colchicum autumnale. In moist woods and thickets, or in low damp meadows; rare? Found some years back by Mr. Daniel Clarke of Newport, in a field by the Medina above Shide Bridge (close to the town on the south), Mr. G. Kirkpatrick; but subsequent research has not confirmed the discovery of the Colchicum in that or any other part of the Isle of Wight. In a small wood at Appleshaw; Mr. Borrer in Bot. Guide. I find it abundant in the large sloping wood nearly facing the church, in which Lonicera Caprifolium has been found, and which produces besides Aquilegia vulgaris and Vicia sylvatica. The Colchicum probably grows not uncommonly in the vicinity of the same village, as it has been found abundantly in a meadow there by the Rev. J. W. Reeves. Near Liphook, Mr. H. Barrett in Baxter's Brit. Flow. Pls. In a meadow near Burghclere parsonage, very plentiful, Cat. of Plants of Newbury. These are the only stations I know of at present in Hants for this equally curious and valuable but dangerously active plant. It doubtless grows in other parts of the county, being found in most of the adjacent ones on the west and north.

Narthecium ossifragum. In spongy, turfy or peaty bogs, wet moory heaths and commons; not frequent in the Isle of Wight. In Sandown Marshes on the skirts of Lake Common. Most profusely in Alverston Lynch, near Newchurch. Abundant on the Wilderness and moors adjoining. On the boggy slope of Bleak Down towards Roude. Moors by Munsley, near Godshill, and Munsley peat-bed. Bog at Blackpan, Dr. T. Bell Salter. Wood near Tinker's Lane (by W. Cowes), Miss G. E. Kilderbee! Freshwater Beach, Isle of Wight, Rev. Messrs. Garnier and Poulter in Hamps. Repos. (where could this plant have grown *then* where all is now sand and shingle?) Far more frequent and abundant in mainland Hants. Boggy parts of Tichfield Common in plenty. Exceedingly abundant on heaths and bogs about Ringwood, and on boggy moors betwixt Christchurch and Poole, at Bournemouth, &c., in profusion. In the bog near Lyndhurst, in which Spiranthes æstivalis grows, and indeed common throughout the New Forest and Christchurch hundreds, on the vast moorland tracts of that boggy and swampy district. Bog at East Woodhay. Beautifully in wet ground below, that is south of Shidfield Church, Miss Hawkins (in litt.). In bogs, frequent, as about Botley, &c., Mr. W. Pamplin (in litt.). A frequent plant, I believe I may say, in every part of the county where moors and bogs prevail. The brick-red of the ripe capsules gradually bleaches by keeping in this and N. Americanum, which last seems scarcely distinct from our European Bog Asphodel.

Juncus maritimus. About salt-marsh ditches, on sandy or muddy sea-shores, mouths of tide-rivers and salt-inlets, also on moory pasture grounds along the coast; very common. On ditch-banks along the shore between Springfield and Nettlestone Point. Plentifully by creeks of the Medina above West Cowes, and in salt marshes at Newtown. Profuse in the salt-marshes along the Yar, betwixt Yarmouth and Freshwater Gate. Thorness Bay, in plenty. Norton and Brading Harbour, in abundance, Mr. W. D. Snooke, (in Fl. Vect. !!!) Abundant in salt-marsh and brackish pastures at Emsworth, and thence westward all along the coast. Plentiful in Hayling Island. About Christchurch Harbour, plentifully. The Salterns, Hill Head, Carm (near Fareham), Mr. W. L. Notcutt; and in innumerable other places. The white bases of the scapes are remarkably clammy, and possess a peculiar fragrance, resembling that of cedar-wood, not I believe noticed by any author.

Obs. J. acutus grows in tolerable plenty at Emsworth, close to the Hampshire border, but on the Sussex side of Emsworth Creek, which divides the two counties, where it was discovered by Mr. Borrer some years ago. It is there found in a piece of muddy ground, overflowed at high-water, on the eastern side of the creek or harbour, just below the quay or embankment and the mill, looking, at a distance, from its dark green colour and mode of growth, something like low broom-bushes. The station can only be approached at low-water, and then across ooze and slime. Some precaution is necessary in collecting specimens of this plant, for the barren scapes and leaves are as stiff and sharp as porcupines' quills, and as capable of inflicting severe punctures. It grows mixed with J. maritimus, from which it may be distinguished from far by its close heads of large, shining, brown capsules, that are very long in ripening, not probably till the second year, by its deeper green, and the somewhat radiated or spreading growth of the scapes and leaves. I searched carefully on the Hants side of the creek, and all along the shore westward beyond Havant, in hopes of securing this rare species to our Flora, which I cannot very honestly or safely contend for its belonging to at present; for, although Emsworth is in Hampshire, and Juncus acutus grows at Emsworth, the concluding proposition of the syllogism, that therefore Juncus acutus is a Hampshire plant, would be demurred to as illogical, in point of fact, by its worthy discoverer, accompanied, probably, by an awkward demand on me for restitution of what I had unceremoniously filched from his Flora for the adornment of my own. Dr. Salter finds a single tuft of this species on the shores of Poole Harbour, (the J. acutus of Pulteney's Cat. of the Pls. of Dorset. is most likely only J. maritimus); it may, therefore, reasonably be expected on some intermediate point of the coast-line between these eastern and western stations.

Juncus effusus. Common in most parts of t and the rest of the county, on barren, wet, or moory pastures, heaths, &c.

Juncus conglomeratus. With the last, and the more abundant of the two; in sterile, rushy meadows, by road-sides, &c. The var. *β*. effusus is, I think, not uncommon with us. The much darker coloured capsules appear to ripen considerably earlier than those of J. effusus.

Juncus glaucus. Less frequent on the whole than the two preceding species, yet very plentiful on poor, wet, sandy, clayey, or heathy pastures, commons and by road-sides. In various places around Ryde. At Quarr Abbey, Springfield, Green Lane, near Ashey, &c.

Juncus diffusus. In similar places with the last, and in the few stations in which I have yet observed it in the county associated with that and J. conglomeratus, appearing to myself to be a hybrid or mule between these two rushes; rare? First noticed as a Hants plant by Mr. Borrer, who remarked it growing in 1847 about Hedge Corner, on the south side of Parkhurst Forest, along the road from Newport to Yarmouth !!! I find it here in considerable plenty, together with abundance of J. glaucus, effusus, and conglomeratus, from the two former of which I must own to experiencing a degree of difficulty in at all times distinguishing it, at first sight at least. I have no doubt of its existence in other parts of the island, but excepting when in fruit, its resemblance to some of the greener stemmed states of J. glaucus renders its detection less easy. On heathy pasture grounds, with J. glaucus, along the road from the "buildings" to the Passage House, Hayling Island, August 7th, 1848.

Juncus capitatus will probably be found ere long in Britain, and perhaps in this county, being frequent on the continent and in some places in Guernsey and Jersey.

Juncus obtusiflorus. In ditches and wet, boggy, or marshy places, often growing in the water, but not very common, either in the Isle of Wight or on the mainland. Ditches in the marsh at Easton (Freshwater Gate), and where one or two of the low, boggy meadows are quite overrun with it. Near the shore just beyond Norton, towards the preventive station; sparingly. Wet banks of slipped land in Colwell Bay. Between the Needles (Groves's) Hotel and Alum Bay. On wet, slipped land near the Sandrock Spring, abundantly; and in various places betwixt Niton and Blackgang. Plentiful in the Undercliff, at Blackgang, and in Sandown Bay, Rev. G. E. Smith !!! Plentiful in marshy spots by the road-side in Stokes Bay, between Alverstoke and Brown Down, July, 1849. By Tichfield River and near Hill Head, Mr. W. L. Notcutt. I have no station at any distance from the sea-coast to give for this species, so well marked by its pale flowers and very decompounded and singularly divaricate panicle.

Juncus acutiflorus. In muddy, boggy, or marshy places, on wet heaths, &c.; abundantly. Our low, wet meadows are sometimes quite covered with this rush.

Juncus lamprocarpus. With the last, and perhaps little, if at all, less frequent than that. The specific name is now generally, and very properly, spelt lamprocarpus instead of lampocarpus, as formerly; the allusion being to the shining (λαμπρος) aspect of the capsules, and not to any supposed resemblance they bear to a lamp.

Juncus supinus (J. uliginosus). In ditches, pools and pits, especially, I think, on a clay soil; also on wet, sandy heaths and commons; frequent. Var. β. Stems procumbent or floating, mostly proliferous.

Juncus subverticillatus. In gravel or clay-pits, &c. In a clay-pit near Bouldner. On Parkhurst Forest, &c.

Juncus squarrosus. On moist, barren, sandy pastures, moors, and heathy places. Quite rare in the Isle of Wight. On several parts of Black Down, abundantly. Moist pastures immediately about the Wilderness and Rookley Farm. Apparently by no means rare in mainland Hants. Most abundantly on Petersfield Heath. Heath near Steep. Short Heath, near Selborne. Most profusely on Wolmer Forest, near the pond, about Holy Water, &c. Profusely on the dry sandy heath about Ringwood and Christchurch, and probably common throughout the Poole basin and on the forest districts and moorlands of the county. I do not know of any distinctive name for this plant in Hants, but Mr. John Laurence tells me that in his native county of Aberdeen, where it abounds on the moors, it is called Bruckles by the country people, which, whatever may be the import of the word, is most expressive of the wire-like hardness and rigidity of the species.

Juncus compressus. Not, I have reason to believe, an uncommon plant in low or marshy meadows, especially near the sea; but all the stations I find amongst my notes relate to J. Gerardi, certainly the prevailing species or form along the coast both of the island and main, and which I am disposed to regard as a salt-marsh variety of J. compressus.

Juncus Gerardi (J. cœnosus). On muddy salt marshes and damp sandy sea-shores; frequent. St. Helen's Spit. Plentiful at the mouth of the Wootton River. On the beach a little way out of Yarmouth eastward, and abundant in the first meadow, or that nearest to the sea, at Easton Marsh, Freshwater Gate, where it forms a considerable constituent of the coarse herbage of that half-drained bog—

Limosoque palus obducat pascua junco.

Very common I think in most places along the coast. Profusely on the south side of Portsea Island, near a salt pond by the beach, about half a mile east of Southsea Castle, &c. I forbear giving more localities from memory, as some may belong to J. compressus. The Salterns (Fareham), Mr. W. L. Notcutt. J. tenuis, *Willd.*, if the Scottish plant be the same, ought to be found in the south of England also, being a native of the plains of central Europe, but there is reason to doubt if the true J. tenuis was ever seen in N. Britain.

Juncus bufonius. By the margin of pools; in half-dried ditches and places where water has stood in winter, in moist sandy or gravelly spots by road-sides, on heaths, &c.; extremely common in every part of the county. J. Tenageia, a species very closely resembling the present, with pale brown, nearly globose capsules, should be looked for in the same localities, as being extremely likely, I conceive, to inhabit the south of England, as it does all the adjacent countries of Europe, both inland and near the coast.

Luzula sylvatica. In dry shady woods, groves, thickets and hilly heathy places amongst bushes, but not general. In woods about Shanklin and Cook's Castle, as in Cowpit Cliff and Hungerberry copses, near Apse farm, &c. Abundantly in one or two spots at Apse Castle. Little Standen Wood, near Newport; plentifully. In the Parsonage Lynch at Newchurch, abundantly, as well as in another wood, near that village. Not rare, and probably frequent in mainland Hants. In Amfield Wood, near Romsey; Cranbury Park woods, near Winton, in various places, and in a wood betwixt Otterbourne and the old church. In several parts of Akender Wood, near Alton, but somewhat sporadical, as it often is with us, although usually abundant in its several stations. Winchester Wood, by Rotherfield Park, and elsewhere in the county.

Luzula Forsteri. In woods, thickets, groves, and on shady hedge-banks; very general over the Isle of Wight, and I believe the rest of the county, where, as in some of the adjacent ones, as Surrey (and Sussex ?), it is even more abundant than L. pilosa, frequent as is that plant with us. Extremely common about Ryde, in Quarr Copse, St. John's, Apley, and in almost every other wood and patch of copse in the neighbourhood. Abundant in the Chine and elsewhere about Shanklin, at Appuldurcombe, and profusely in several parts of Apse Castle, in the dry heathy ground by America, and other spots of that romantic locality. Common about Cowes, in Mrs. Goodwin's grounds, in woods at Osborne, Norris Castle, &c. About Newport, in Little Standen Wood, &c. Abundant in Bordwood Copse, the Parsonage Lynch, and various other places about Newchurch. In the Undercliff, at Steephill, near Swainston, and in innumerable other places in the island, preferring a dry, friable, light soil, but often, as about Ryde, on stiff clay, or rather perhaps on the vegetable mould that lies upon it; it also grows on the chalk, but less commonly. I have not specially observed the distribution of L. Forsteri on the mainland, but am convinced it is not uncommon there. In a beech-hanger near Alton. Hedge-bank a little way out of Bishop's Waltham, towards Droxford. Abundant in a wood by the Newbury road from Andover, about a mile beyond Enham. Parnholt or Parnell Wood, near Winton. Copse near Whitedell, Mr. W. L. Notcutt. New Forest, Chas. Lyell, Esq., in Hook. and Graves's Contin. of Fl. Lond. Doubtless in many other places, but being, like the rest of the genus, a very early plant, after the flowers and fruit have disappeared in May or June, the species cannot, with that certainty required in giving localities, be distinguished by the foliage alone from some narrow-leaved states of L. pilosa, and hence is often overlooked for that species.

A doubt, I believe, exists in the minds of some British botanists who have not seen L. Forsteri in a fresh state, but only in the herbarium, as to its distinctness from L. pilosa; no one, however, to whom the plant is familiar in its native woods can, I think, reasonably entertain such an idea. Strong as is its general resemblance to L. pilosa, and which, when in the dried state and not in seed, may induce a suspicion of its being but a form of that species, there can never be the least difficulty in distinguishing L. Forsteri by its seed and capsules from that or any other species of the genus. There is a remarkable conformity in the aspect of the leaves amongst various unquestionably distinct species of Luzula, and the form of the perianth, and even the disposition of the panicle, afford characters little apparent or subject to modification; such, too, from my own experience, is the relative proportion in length between the anther and its filament, which is yet so far constant [illegible] a very fair subordinate mark of distinction. Since L. Forsteri has not yet been detected in Ireland, and there seems great reason for thinking that some form of L. pilosa has been taken for it in Scotland, I may perhaps be doing a service to Scotch and Irish botanists by pointing out the characters of the former more in detail than has been done in the books most in use as field manuals; the more especially as I am unacquainted with any good figure of this plant, the one in 'English Botany' being wretchedly deficient, and the far superior drawing in Hooker and Graves's continuation of the 'Flora Londinensis,' besides that that sumptuous work is in still fewer hands than the other, depicts an extreme narrow-leaved form of L. Forsteri, and not the ordinary or normal state of the species, whilst the figures of the seeds and capsules both of this and L. pilosa are defective representations of their kind. L. Forsteri grows in precisely similar places, and often intermixed with L. pilosa, but flowers perhaps rather later than it, or when the latter commences to form capsules. The leaves in both are extremely similar, forming dense tufts, narrower in general in L. Forsteri than in L. pilosa, occasionally very much more so, at other times nearly as wide, and equally hairy. The panicle of L. Forsteri is cymose, of several compound, mostly erect, or rather patent or diverging branches, but of which two or three are usually reflexed or divaricate, especially after flowering, and the base of the panicle is subtended by an erect, sublinear bract, far narrower or less leaf-like than in L. pilosa, whatever may be the breadth of the root-leaves themselves. In the height of the stem, there is no constant difference between these plants. Flowers paler in general than those of L. pilosa, the segments of the perianth more finely taper-pointed or acuminate, very acute; anthers shorter than the perianth, about as long or rather longer than the compressed, ascending filaments; in L. pilosa the anther is above twice the length of the greenish and flattish filament, which proportions are tolerably constant within certain limits in each species. Ovary more acutely trigonate and more gradually tapering into the style than in L. pilosa. Capsule reddish-brown and shining, acutely triquetrous, the faces nearly plane, simply acute or acuminate, with no obtuse and conical contraction at the summit, and (including the hard, sharp, mucronate apex) about as long as the nearly erect perianth-segments. In L. pilosa the capsule is broadly ovoid, trigonous, obscurely three-lobed, with as many very blunt angles and convex intermediate faces, visibly contracting above into the very rounded and obtuse summit, of a subconical figure, sometimes minutely tipped with the base of the style, but scarcely mucronate, much longer than the spreading and peristent persianth. Seeds* in L. Forsteri roundish, ovoid or nearly globose, bright brown, very smooth, polished and translucent, crested with a large, oblong, obtuse and oblique, but not at all hooked caruncle. The seeds of L. pilosa are precisely like those of L. Forsteri in form, size, and colour, but furnished with a caruncular appendage of at least twice the length, attenuated into a point and uncinately contorted.† The foregoing remarks will, I trust, enable our northern and western botanists to distinguish these two most indubitably separate, but assuredly closely related species, so long confounded, till the late Mr. E. Forster and Mr. Bicheno pointed out, the former in the panicle, the latter in the seed, characters by which L. Forsteri differed from its more common ally. The geographical distribution of the two species is moreover totally different, for whilst L. pilosa is dispersed over nearly the whole of Europe, almost to the northernmost extremity of Scandinavia, L. Forsteri is strictly a plant of southern and central Europe, even in Germany scarcely found, but in the middle and western part from Switzerland to Baden and Rhenish Prussia, and thence westward over France and a great part of England. I may add that the root of L. Forsteri is much less creeping or stoloniferous than in the other, a fact remarked also by Gaudin in his 'Flora Helvetica.'

Luzula pilosa. In rather dry groves, thickets, copses and on bushy banks, often amongst dead leaves; very common over the entire county and Isle of Wight. Profusely in some parts of Apse Castle, with the two preceding species and the following. Extremely, perhaps usually, plentiful in woods by the Newbury road from Andover, a little beyond Enham; in one place associated with L. Forsteri and the following enigmatical species, state or variety.

Luzula ——— (nova species ?) So long back as April, 1841, I was struck with the appearance of a Luzula growing plentifully at Apse Castle, near Shanklin, closely resembling L. pilosa in appearance, and having, like it, strongly divaricate and partly deflexed peduncles. A difference in the size and aspect of the plant led me to examine it more carefully, when I found that the seed resembled that of L. Forsteri in having the fleshy crest or appendage straight and obtuse, and wholly without the hook-like curvature in which the same appendage terminates in L. pilosa. I at once set it down for a remarkable variety of L. Forsteri with the panicle of L. pilosa, and as such preserved specimens in my herbarium, and sent others dried to Mr. Borrer, who, from not having seen fresh capsules and seed, was induced to pronounce it only L. pilosa, an opinion which led me to pay no further attention to the plant at that time, and it was suffered to lie unnoticed and almost forgotten, till last year, when the sight of the dried specimens, and their striking difference of aspect from L. pilosa and Forsteri, again prompted to a renewed investigation of the plant in its native haunts. The result of a long and laborious examination of some hundreds of specimens, and comparison with as many of the two allied species made on the spot at short intervals of time, and in every stage of their growth, has gone very far towards showing the Apse-Castle Luzula to be a species intermediate betwixt L. pilosa and L. Forsteri, yet sufficiently distinct from either, and for reasons which I shall adduce presently, by no means a mule production.

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* The seeds of Luzula must be examined when quite recent, as they soon become dull, wrinkled and opaque by keeping, and the crest shrinks and loses its peculiar form and proportions, whilst the form of the capsules cannot be well seen after their dehiscence. From inattention to these points, the figures of the fructification of L. pilosa and L. Forsteri, in the exquisite supplementary plates of the edition of the 'Flora Londinensis' by Hooker and Graves, are sadly deficient in fidelity, both as to form and colour. These parts in L. Forsteri are much better drawn than in L. pilosa.

† As much or more bent than the letter S; in othe [illegible] hooked.

This curious plant grows very abundantly at Apse Castle,* in two or three places on sloping banks, under brushwood, in a dry, friable sandy mould, sometimes by itself, at other times in company with L. pilosa or L. Forsteri, or both, but in quantity much exceeding these last.† The following directions will enable any person to find it in one of its two principal stations with ease. Entering Apse Castle by the footway across the fields from Shanklin and Cliff Farm, or passing the gate opening into the dell (Tinker's Hole), keep the left hand green road or turf-walk, and proceed upwards till you come to the plantation of pines, skirting which the road continues, leaving the dell below on your right. Pursuing this walk, perhaps for a couple of hundred yards, a narrow track or footpath emerges from it on the right through the brushwood, which brings you in sight of a sloping pasture-field nearly surrounded by wood, at the foot of which field a brook parts it from the steep, copse-covered bank on its other side.

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* For an account of this retired and picturesque spot, see page 534.

† It is worthy of remark, that L. pilosa and Forsteri abound most on that side of Apse Castle nearest to America, and furthest from the part where our new plant flourishes; yet although the two former grow copiously intermingled, or in patches adjacent to each other, I find none of the third kind there at all.

Crossing this brook, you will find the Luzula in plenty all along the foot of the bank and margin of the brook, mingled with a small proportion of L. Forsteri, and still less of L. pilosa. It also grows plentifully, and in nearly complete isolation, on the slope of the dell, a little below and opposite to the pine plantation before mentioned, under hazel and other shrubs, but the spot is less easy to direct a stranger to than the other. I shall now proceed to detail the characters of this new Luzula, if such it be. Plant taller than either L. pilosa or Forsteri, eighteen or twenty inches high,* very slender. Leaves (root) longer than in L. pilosa, and quite as broad, laxer, more drooping or recurved at their extremities from their greater length, otherwise similar, excepting that their colour, viewed in the aggregate, is somewhat brighter green. Panicle resembling that of L. pilosa, but by no means the same, the very strongly reflexed and divaricate peduncles fewer and much longer, hence the flowers appear very widely scattered, and the outline of the panicle is quite oblong, not as in L. pilosa, roundish. The bract at the base of the panicle is long, narrow, and acuminate as in L. Forsteri, and the flowers are, as in that, pale, but with perianth-segments a little broader and less acuminate, or more like the same parts in L. pilosa. Stamens similar to those of L. Forsteri, but anthers rather longer, and somewhat exeeeding the filaments in length. Ovary more obtuse than in L. Forsteri, not tapering at the top into the style as in that, with much thicker, blunter angles, each angle with a distinct furrow down its centre. Capsule much smaller than in either L. pilosa or Forsteri, and greatly shorter than the erect or converging perianth, ovoid, somewhat acute, trigonous, with three thickened, obtuse, furrowed angles. Seed always? abortive, a solitary one here and there apparently well-grown, but never, so far as I can find, acquiring full colour and maturity. The few I have been enabled to examine in this seemingly developed but unripe condition, resemble those of L. Forsteri, and like them have a straight, blunt appendage or crest, without a trace of any tendency to become hooked as in L. pilosa.† It now remains to be considered whether the Apse-Castle Luzula be a hybrid betwixt L. pilosa and L. Forsteri, or distinct from both. The numerous points

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* L. pilosa and L. Forsteri, when growing near or amongst it, do not exceed their usual size, of about ten to twelve inches.

† Even here there is a doubt, which only perfectly ripened seeds can dispel. I have ascertained that the crest to the seeds of L. pilosa is at first straight, and does not elongate and become hooked till they are at least half grown.

Contents of 'Hooker's Journal of Botany,' No. 19, *July,* 1850.

Continuation of Mr. Spruce's Letters from South America.

Report on the Dried Plants collected by Mr. Spruce in the neighbourhood of Para. By George Bentham, Esq.

Continuation of Dr. J. D. Hooker's Letters from India.

Botanical Information: Victoria Regia.

Notices of Books: Martius's Genera et Species Palmarum. The Gardener's Magazine of Botany, &c.

Botanical Society of London.

Friday, July 5, 1850. J. H. Wilson, Esq., F.L.S., in the chair.

J. P. Norman, Esq., of London, and T. Dutton, Esq., of Bath, were elected members.

Mr. George Maw exhibited specimens of Lilium pyrenaicum, discovered by him between South Molton and Mollond, Devonshire, in June last.

Dr. Arthur Hassell read a paper "On the Colouration of the Water of the Serpentine." In this communication it was shown that the periodical and vivid green colouration of the water of the Serpentine is due to the presence of a minute plant belonging to the tribe of Algæ, of which the writer gave a detailed and critical description, and which he named Corriophytum Thompsoni. The development of this plant takes place early in the spring, out of sight and at the bottom of the water, and it is only on the approach of the warm weather of summer that it diffuses itself through the water, deeply colouring it, and that part of it rises to the surface, forming a scum or pellicle of a bright æruginous or coppery-green colour. The whole of the water of the Serpentine is not usually coloured at one time, but different portions of it at different times, according to the strength and direction of the wind which drives the plant before it; at one time it is found collected at the Hyde Park extremity, at another it is present in the Kensington division, sometimes on the north, and at others on the south shore, the remaining parts of the Serpentine being entirely free from the plant. This variable distribution, which, unexplained, would be apt to occasion surprise, accounts for the fact that the observer may sometimes visit the Serpentine and not see a trace of the capsule of that species occasionally produced, but such has never once occurred in the almost innumerable tufts I have examined in their native locality.

W. A. Bromfield.

(To be continued).

Contents of the 'Botanical Gazette,' No 19, *July,* 1850.

On the mode of action of Heat upon Plants, and particularly the effect of the Solar Rays. By M. Alphonse De Candolle. [Translation from the Bibliothèque Universelle de Genève, March, 1850.]

Note on Viola stagnina. By Charles C. Babington, M.A. [To the other characters by which Mr. B. would distinguish this plant from V. lactea of Smith, he adds that "of a slender rhizoma, spreading rather extensively through the peaty soil which the plant inhabits, and sending up at short intervals what have the appearance of being distinct individuals."]

Remarks on Mentha sativa and gentilis of Linneus. By Dr. C. J. Hartmann. [Translation from the 'Flora' of January 28, 1850. Dr. Hartmann contends that Fries has misapplied the Linnean names of these plants, and that the nomenclature is thus: M. sativa, *Linn.* = M. gentilis, *Fries.*; M. gentilis, *Linn.* = M. rubra, *Fries.*; M. Aghardiana, *Fries.* = M. sativa, *Fries.*]

On Sagina apetala, L. and S. ciliata, *Fries*, with some remarks on the mode of discriminating species. By Arthur Henfrey, F.L.S., &c. [Mr. Henfrey concludes the latter of these to be a variety of S. apetala, not a species permanently distinct from it. His grounds for this conclusion appear to be sound and sufficient, but must be consulted in the original.]

A Monograph of the Hieracia. [Continuation of the abstract from Fries's 'Symbolæ ad Historiam Hieraceorum.']

Literature: Wigand's 'Principles of Vegetable Teratology.' Woods' 'Tourist's Flora.' Contents of various botanical journals.

Proceedings of Societies: Botanical Society of London. Botanical Society of Edinburgh.

Miscellanea: Record of Localities. Woods on the genus Orobanche. Itzigsohn on Antheridia in Lichens. Collections of plants for sale.

not detect a single flower on any of these, owing, as I suppose, to their being too frequently disturbed by the passing of boats.

The lockman kindly volunteered his assistance in gathering specimens, and in the course of conversation, informed me that it was quite as abundant when he first came to the Locks five years ago as at the present time, although the reservoirs had been cleaned out once or twice during that period. He further informed me, that he had formerly resided at Foxton Locks, and that the reservoirs there were "full of it more than twenty years back," also that it had been plentiful in the Market Harborough Canal during the whole of that period. A short time after this conversation took place, two labourers belonging to the Locks came up; both of them confirmed the statement of its being plentiful in the Market Harborough Canal, and one of them added, that the "Welford Branch," a narrow canal, comparatively little used, was so full of it that the passage of boats was impeded, and the canal necessitated to be cleared out once or twice a year, and that it had been so for many years.

How very remarkable that for so long a period this plant, by no means an inconspicuous one, in widely separated localities, should with the single exception of Berwickshire, have totally escaped the notice of botanists!

As it may be a temptation to some botanist to visit the locality, I will just add, the Locks are situate little more than half a mile from the Crick Station of the London and North Western Railway, on the Coventry side. The canal crosses the turnpike-road at a short distance from the station-gates, and by following its course for little more than half a mile the Locks would be reached. Several patches of Anacharis occur in the canal by the waste ground adjoining the Railway Station, intermingled with Potamogeton pectinatus and others, amongst them the little-known P. zosteraceus, which is also abundant between the Locks and Crick Tunnel. P. zosteræfolius and compressus occur in the upper reservoir; and in a rivulet near it grows Ranunculus circinatus, &c.

The best time for visiting the locality is towards the latter end of August; when I visited the spot on the 13th of that month, the plant had not nearly reached its maximum of flowering.

THOMAS KIRK.

Coventry, July 22, 1850.

Some Remarks on the specific characters of the Greater and Smaller Butterfly Orchises (*Platanthera chlorantha and bifolia*). By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

IN a late part of my Catalogue of Hampshire Plants, in this journal (Phytol. iii. 903 *et seq.*), I expressed myself in doubt of the value as species of the greater and smaller butterfly orchises, although distinguished as such even by the older botanists of this kingdom, and in our own day well illustrated by Mr. Babington in the seventeeth volume of the 'Linnean Transactions.' A recent and renewed examination of these beautiful and fragrant plants, made on an extensive series of each in a fresh state, from various parts of this neighbourhood and of Alton, has, I confess, removed much of the doubt I till then felt on the question of their specific diversity. Still, it must be owned there is too close a resemblance in the aspect, habit and structure of these Platantheræ not to leave a suspicion behind, that with all their apparently constant differences and well-marked characters, they may nevertheless be but forms of a single species; yet, since it would be equally difficult to prove the negative as the positive proposition in the absence of intermediate states, which I am unable to produce, I shall rest satisfied with assuming the truth of the latter, and with pointing out, in corroboration of the views of those botanists who hold the two plants indubitably distinct, some additional marks of difference, together with the characters already laid down for their discrimination, placing those of each kind in juxtaposition, in a synoptic or tabular form, for readier comparison. It may with truth be contended that our Platantheræ differ from each other quite as widely as do Orchis maculata and O. latifolia, which no botanist, so far as I am aware, has had the hardihood to reduce to varieties of a single species.

Platanthera bifolia (the smaller butterfly orchis) I now find in many of the beechen woodlands so extensively spread over the whole neighbourhood of Alton, as in Akender Wood, Chawton Park, at Medstead, and notably in woods by Rotherfield Park, as in Winchester Wood and Carter's Copse, as also in Froxfield Hangers, near Petersfield,* from all of which stations, as well as from other places, an abundant set of specimens was gathered a few days back, and

* These beechen uplands produce copiously certain plants rather characteristic of the flora of the northern or midland counties, as Hypericum dubium (more common even than H. perforatum at Chawton and Rotherfield), and especially Epilobium angustifolium, which, frequent though it be in Hants, occurs about Alton i

rigorously and simultaneously compared with as multitudinous a supply of examples of P. chlorantha, from the thickly wooded slopes of the chalk range called Hawkley Hangers, a few miles from this village, as also from other localities where the greater butterfly orchis abounds, which it does far more generally and plentifully in this county than the smaller kind. I have thus assured myself that the differences detailed below were not merely accidental or individual peculiarities, but were at least common to all the plants of these species in the district within which the examples submitted to examination were collected, if they may not hold good in specimens from parts of the country more remote, which I must leave to other and abler observers than myself to ascertain.

Besides the leading or most prominent character which serves to distinguish our two Platantheræ, the parallelism and divergence of the cells of the anther, there are several subordinate ones apparently no less constant, but which, from having been overlooked or slightly alluded to, I now proceed to exhibit, in conjunction with the longer recognized and more obvious marks of distinction, in the subjoined tabular view.

Platanthera chlorantha.	*Platanthera bifolia.*
Anther much broader than long, very concave anteriorly, the connective (column) with a *prominent*	*Anther* about as broad as long, or even narrower, connective (column) plane, or by the approxima-

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less profusion, literally filling the woods at the two last named places, and making a glorious appearance in July and August. Another plant more frequent, I think, in the midland counties than in those along the south coast—Convallaria multiflora—I have now ascertained to be dispersed over nearly every part of Hampshire (the Isle of Wight excepted), abounding in most of the central, northern and south-eastern parts, and at least as far westward as Harewood Forest, near Andover, where it is common in very many parts of that sequestered woodland tract. I do not find mention made by any author of the strong smell emitted by the Soloman's seal, which resides in the root, stem and fleshy bases of the leaves, and exactly resembles the odour of Iris fœtidissima, but is even more powerful than in that plant. The bruised leaves themselves exhale no peculiar smell. Does C. Polygonatum, which I cannot succeed in rediscovering this season in Mr. Woods' old station of Chawton Park, possess the same smell? If it does not, the knowledge of the above fact may aid in detecting the latter when out of bloom, at which time its great similarity to C. multiflora, the stem of which, in the larger plants especially, is often furrowed and subangular, and in the smaller commonly compressed and almost two-edged, may occasion it to be overlooked for that more abundant and less local species.

Platanthera chlorantha.	*Platanthera bifolia.*
ridge in front or between the cells, which are *widely diverging at their lower ends*, and obliquely ascending inwards and backwards.	tion of the cells appearing to form a groove in front; cells of the anther rising almost perpendicularly, parallel throughout.
Stigma very broad and concave, forming a semicircular, basin-like cavity; slightly pointed in the middle by a thickened glandulose projection of its superior margin.	*Stigma* scarcely one-third the size it is in P. chlorantha, its superior posterior margin much thickened into a prominent, gland-like projection in the centre, occupying nearly the whole space between the lower ends of the anther-cells.
Lateral petals narrow or *attenuated* almost from their rounded bases, *curved over* the stigma, their tips crossing or overlying, and forming an *arch just above* the anther, occasionally merely approximate or conjoined at their summits. *Inferior petal* (lip) longer and narrower than in P. bifolia, mostly curved downwards and backwards.	*Lateral petals* but little diminished in width, or nearly as broad throughout as their rounded bases, *rising almost perpendicularly*, and *converging much above* the anther, their tips not crossing or overlapping, but erect, usually conjoined below their summits, the latter in that case spreading or diverging, sometimes simply approximate and erect (not touching or conjoined). *Inferior petal* or lip shorter and broader than in P. chlorantha, and in general straighter, but little (or often not at all) decurved.
Lateral sepals (usually) more deflexed than in P. bifolia.	*Lateral sepals* spreading horizontally, seldom, or but little deflexed, except at the tips.
Spur very strongly keeled and compressed, *visibly dilated or subclavate at the extremity,* and mostly much curved downwards; twice or thrice as thick as in P. bifolia,	*Spur* keeled and compressed, filiform and subcylindrical, or of equal thickness throughout, or very nearly so, extremely slender, and usually straighter than in P.

Platanthera chlorantha.	*Platanthera bifolia.*
and rather inclined to take a prone than a horizontal direction.	chlorantha, nor is it in general so pronely directed as in that, but tends more to a horizontal than a vertical position.

In size, P. bifolia is usually inferior to P. chlorantha, but specimens of the former may often be met with as tall as most of the latter. I find the degree of greenness or whiteness in the flowers a variable and reciprocal character; neither can I detect any difference in the leaves, bracts or other organs, except the floral ones, unless it be that in P. bifolia the leaves look commonly as if highly varnished underneath, which is perhaps less frequently and conspicuously seen in P. chlorantha. Pollen-grains in both oblong and truncate, pale yellow.

W. A. Bromfield.

Selborne, Hants, June 14, 1850.

Note on Agraphis nutans. By George Luxford, A.L.S., &c.

This pretty plant is known by the name of Blue-bottle in many parts of Surrey, as well as in the Isle of Wight (Phytol. iii. 973); but when a boy, I was taught to believe that this name had reference to the flask-shaped ovary and style, divested of the floral envelopes, not to the form of the flower. Last May I had the pleasure of seeing the delicate white variety in considerable abundance in a wood near Chislehurst, in Kent.

G. Luxford.

East Temple Chambers,
August 1, 1850.

On the British Species of Hieracium contained in the 'Symbolæ ad Historiam Hieraciorum' of Fries. By JAMES BLADON, Esq.

AN abstract of the introductory part of the monograph (containing the general observations and the grouping of the species), translated from the 'Flora,' having appeared in a contemporary botanical periodical, I shall at present chiefly confine myself to the synonymy of our species; as one of the latest, and that in general use, I shall take the second edition of Babington's 'Manual' for comparison, first exhibiting a tabular view of the species as they stand in each work.

No.	*Babington.*	*No.*	*Fries.*
1.	Pilosella, *Linn.*	1.	Pilosella, *Linn.*
2.	dubium, *Linn.?*	2.	stoloniflorum, *Waldst.*
3.	Auricula, *Linn.?*	8.	glaciale, *Lachen.*
4.	aurantiacum, *Linn.*	16.	aurantiacum, *Linn.*
5.	alpinum, *Linn.*	49.	alpinum, *Linn.*
	„ b. Halleri, *Hook.*	50.	sudeticum, *Wimm.*
6.	nigrescens, *Willd.*	75.	nigrescens, *Willd.*
7.	villosum, *Linn.*		?
8.	murorum, *Linn.*	80.	cæsium, *Fries*
9.	Schmidtii, *Tausch*	67.	pallidum, *Bivon.*
10.	Lawsoni, *Sm.*	37. 37.*	trichocephalum, *Willd.* anglicum, *Fries*
11.	vulgatum, *Fries*	82.	vulgatum, *Fries*
12.	Lapeyrousii, *Frœl.*	40.	Iricum, *Fries*
13.	cerinthoides, *L.?*	38.	cerinthoides, *Linn.*
14.	amplexicaule, *Linn.*	53.	amplexicaule, *Linn.*
15.	denticulatum, *Sm.*	124.	prenanthoides, var. paucifolium (*Vill.*)
16.	? prenanthoides, *Vill.*	126.	strictum, *Fries*
17.	inuloides, *Tausch*	140.	crocatum, *Fries*
18.	boreale, *Fries*	145.	boreale, *Fries*
19.	tridentatum, *Fries*	132.	tridentatum, *Fries*
20.	rigidum, *Fries*	133.	rigidum, *Hartman*
21.	umbellatum, *Linn.*	135.	umbellatum, *Linn.*

Besides the above we have—

		71.	oreades, *Fries*
		72.	saxifragum, *Fries*

Babington.	*Fries.*
	75.*atratum, *Fries*
	78. murorum, *Linn.*
	79. plumbeum, *Fries*
	84. gothicum, *Fries*, and two varieties
	89. dovrense, *Fries*
	146. virescens, *Sonder*

The old adage, " Who shall decide when doctors disagree?" is fully exemplified in this troublesome genus; even the original describers are in error in some instances; others, with the plant and figure before them, are held to have described a different plant: out of twenty-one species described in the 'Manual' we are to have no less than twelve fresh names.

1. Pilosella, *Linn.*, the variety b. Peleterianum, *Gaud.*, No. 3, Frœlich in De Candolle's 'Prodromus,' vol. vii. p. 200, is re-named pilosissimum (p. 3, *Fries*).

2. dubium, *Linn.?* = stoloniflorum, *Waldst.* and *Kit.* Pl. Hung. p. 303, t. 273, optima (No. 7, bifurcum, *Frœl.* l. c.), dubium, *Huds.? Woodward*, and *Withering*, cum descrip. eximia indeque etiam *Smith*, Brit. p. 828, E. Bot. 2332, at non Smith's 'Compendium' et 'English Flora.'—Forsan in Anglia Boreali, p. 6, F.

3. Auricula, *Linn.?* E. Bot. 2368 = glaciale, *Lachen.* Acta Helv., *var.* angustifolium, *Hoppe* (No. 22, angustifolium, *Frœl.*), p. 13.

3. Auricula, *Linn.* = dubium, *Smith*, Eng. Flora, iii. 356, at non Linn. nec ipsius Flo. Brit., Eng. Bot. (No. 10, Auricula, *Frœl.*)—p. 14.

4. aurantiacum, *Linn.* E. Bot. 1469.—In Britannia adventitium creditur, (No. 19, *Frœl.*)

5. alpinum, *L.*, *Smith*, E. Bot. 1110.

„ b. Halleri, *E. Bot.* 2379 = this is cited as well as ? villosum, *Dickson!* in 'Linnean Transactions,' for sudeticum (No. 35, *Frœl.*), p. 73. See below, villosum.

6. nigrescens, *Willd.* = Broad dented Hawklung, *Petiver*, Brit. t. 13, f. 3, murorum δ. *Smith*, Brit. iii. p. 1404 (No. 36, *Frœl.*)

7. villosum, *L.* Quid H. villosum, *Babington?* valde pilosum l. oreades? dubia de H. Lawsoni, Anglis collectivo, suis locis notavimus.

8. murorum, *L.* = cæsium, *Fries*, murorum, *Linn.*, pr. p. et Auct. plu. *Smith*, Comp. p. 131 (β. ejusdem, *Fl. Brit.* p. 830), et Transac. ix. p. 236! Eng. Bot. 2082!

*Hypochærides, Bot. Brit. rec.—pro var. H. maculati misit Cel. Woods formam singularem.

Murorum, *Linn.*, var. silvaticum Linn. β., *Smith!* Engl. Flora, iii. p. 359, et Auct. s. laud. (a reliquis male interpretatum!), *Petiver*, Brit. 13, f. 3: this is quoted above; see nigrescens.

9. Schmidtii, *Tausch* = pallidum, *Fries*, Lawsoni, *Bot. Scot.* pr. p. Halleri, *Curtis*, Lond. 215 (H. scapigero accedens). (No. 55, Sternbergii, et 116, Schmidtii, *Frœl.*)

There is no reference under diaphanum to either Schmidtii or Lawsoni, or to the 'Manual.'

10. Lawsoni, *Sm.* E. Bot. 2083 = trichocephalum, *Fries* (No. 37, p. 56), cfr. obs. infra.

„ *Babington!* Man. 169 (rec 196), *Borrer! Woods! Balfour!* = H. anglicum, *Fries* (No. 37* p. 93).

H. leptocaulon hirsutum folio longiore, Raii Syn. 3, 169, ex icone in Eng. Bot. hoc potissimum referendum, sed typus iconis est planta culta, et inter numerosissima specimina spontanea H. Lawsoni nulla cum præcedente prorsus congruunt. Primitivum H. Lawsoni (Villarsii exclus. tamen synonymo Lawsoni) sistit H. saxatile, plantam cum H. trichocephalo eximie analogam H. Lawsoni, *Brit.* (exclus. syn. Vill.) est inter omnia Hieracia mihi difficillimum, cum numerosissima præsentia specimina inter se maxime differant. Specimina Irlandica ad H. cerinthoides, ad quod H. Lawsoni, *Smith*, retulit Koch! potissimum pertinent, sed caulis submonophyllus. Specimina Anglica (Teesdale, etc.) a Borrer, Babington, Woods, etc. sistunt H. pilosum, β. subnudum, *Frœl.*, de quo judicium ferre in præsente non ausus sum, at subjungam descriptionem; Caulis scapiformis, nudus l. monophyllus, pedalis circiter, simplex l. sæpius in pedunculus 2-4 elongatos subarcuato-adscendentes *bracteis*, nec foliis, *suffultos.* Folia radicalia rosulata longe petiolata (petiolo vix alato, plus minus hirsuto), exteriora subrotunda, obtusa, integerrima, reliqua ovata l. elliptica, acuta, denticulata, caulina nulla, l. diminuta sessilia. Capitula et ligulæ prioris. Specimina Babingtonii intense glauca et fere glabra; Borreri pallida et hirsuta, ex eodem loco. Foliis omnibus rosulatis, caule subnudo, anthela discreta, ad Pulmonareas maxime accedit. Alia dein specimina H. Lawsoni e Scotia (Aberdeen! etc.) omnino ad Pulmoneareas pertinent. Malo dubia profiteri, quam ex characteribus l. arbitrio sententiare.—page 57.

11. vulgatum, *Fries.*

a. *Varietates angustifoliæ, subglabræ.*

H. vulg.-genuinum. H. maculatum, *Smith*, Eng. Fl. iii. p. 360, Eng. Bot. 2121, haud bona. Var. foliis maculatis, *Bab.* p. 196.

c. *Varietates latifoliæ, plus minus hirsutæ, virides.*

H. nemorosum = murorum, *Smith*, Brit. ii. 230, a, b. = sylvaticum, *Smith*, Linn. Trans. ix. p. 239, a. E. Bot. 2031, Eng. Flo. iii. p. 361. (Bene quidem monet hoc et cultum et loco constanter differre ab H. vulgato-genuino, *i. e.* suo H. maculata, sed notas non inveni fidas). The only reference to Frœl. is, Frölich, l. c. p. 214, H. silvaticum, *Ejusd.*, mixta planta, ex magna parte priorum formæ nemorosæ!)

12. Lapeyrousii, *Frœl. ?* = iricum, *Fries*, *Bab. !* ed. 2, p. 196, E. 2916, *Borrer !* Soc. Bot. Ed.! non Frœlich.

H. Lapeyrousii, *Frœl.*, apud *De C.* vii. p. 232, est species omnino mixta et delenda, singulæ vero formæ ab H. irico diversæ sunt. Var. *villosa* est sequens, *flexuosa* videtur H. corruscans ; reliquæ et forma primaria ad stirpem H. laniferi pertinent.

13. cerinthoides, *Linn. ?* = cerinthoides, *Linn. !* Spec. ii. 1129, *Smith !* E. Fl. iii. p. 365, E. Bot. 2370 (rec. 2378), *Bab.* ed. 2, p. 196. Planta culta! ; spontanea ex Anglia sub nomine H. Lawsoni mittitur!

14. amplexicaule, *Linn.* = E. Bot.! 2690. Per alpes australes, copiose, nec non in Anglia! adventitium in muris vetustis (specimina vero indigena Scotica! ad H. dovrense).

15. denticulatum, *Smith* = prenanthoides, *Vill. !* E. Bot. 2122 (non *Smith*, Eng. Flo. iii. 369), *Frœl. !* vii. p. 221 (rec. 211, No. 42), *Bab. !* Man. ed. 1, p. 184 = H. spicatum, *Dickson !* in Linn. Trans. ii. p. 288 = var. paucifolium. H. denticulatum, *Smith*, E. Fl. l. c. ex Borrer! lusus vegetior, latifolius.

16. prenanthoides, *Vill.?* E. Bot. 2235, an H. prenanthoides, *Smith*, Eng. Fl. l. c., E. Bot. 2235, at minime specc. Borreri! etc. = H. strictum, *Fries*, var. granulatum.

Desperandum sæpe de synonymis recentiorum extricandis cum notæ variabiles modo indicantur. Hoc vero habeo e locis Smithianis sub nom. H. inuloidis, et primarium sub nomine H. rigidi, ad Ochill Hills Scotiæ lectum a Dr. Dewar. There is no reference under either of the last two to the second edition of the 'Manual.'

17. inuloides, *Tausch !* = H. crocatum, *Fries*, var. dilatatum. Crocatum vero = sabaudum, *β. Smith*, Brit. et Engl. Fl. iii. p. 368.

18. boreale, *Fries* = sabaudum *Smith*, Brit. 384, a. E. Bot. 349.

19. tridentatum, *Fries.* The only English reference is Bab.! 2, 199.

20. rigidum, *Fries.* The only modern English reference is Bab.! 2, 199.

21. umbellatum, *Linn.* E. Bot. 1771. There is no allusion to the var. β. Taylori.

The following are the species not in the 'Manual':—

22. No. 71, oreades, *Fries*, p. 100 = H. macrocaulon hirsutum folio rotundiore Raii Syn. 169, cited by Smith, Eng. Fl. iii. 359, for H. murorum, (in Anglia boreali ex Dillenio).

H. oreades, phyllopodum, *intense glaucum*, caule subramoso folioso, foliis oblongis medio denticulatis margine subtusque piloso-crinitis, caulinis sessilibus, anthela contigua canofloccosa *involucrisque tumidis utrinque truncatis, albocrinitis, squamis obtusis, ligulis eximie ciliatis*, stylo luteo.

23. No. 72, saxifragum: in the geography of the genus he gives it as a British species with a! but in the account of the species he gives no British locality, unless it is included in "in montibus Europæ mediæ rarius."

24. No. 75* atratum: this is in the same predicament as the foregoing species.

25. No. 78, murorum, *Linn.*: for the normal form of this species there is no English author quoted. See above, No. 10, for the variety sylvaticum; the variety pilosissimum has Ben Bulben, Ireland, for its locality.

26. No. 79, plumbeum: this is marked in the geography as British, without any locality assigned.

27. No. 84, gothicum, p. 121: hypophyllopodum, obscure viride, caule rigido folioso apice subcorymboso erectove-ramoso, foliis ovatis lanceolatisve medio grosse dentatis, radicalibus breve petiolatis, caulinis sessilibus, *anthela contigua, involucris nudis atrovirentibus siccis atris, carina glandulosa, pilosis, squamis spiraliter imbricatis latis plurimis obtusis* apice glabris, stylo fusco-hispidulo, *pappo eximie rufescente—maximum.* Var. a. "H. murorum," *Vahl.!* e Grœnlandia.

Var. b, "H. pulmonarei var."! Woods ex Anglia, caule elongato paucifolio, foliis caulinis petiolatis basi grosse porrecto-dentatis, capitulis paucis globosis magnis, squamis cuspidatis, ligulis ciliatis. Habitus H. vulgati, at proprius var. c. H. asperifolium, s. "H. sylvatici var." a Cel. Leighton, in Shropshire, Angliæ, pumilum, caule inferne folioso, foliis ovatis pilis brevissimis confertis basi bulbosis, quasi glandulosis, asperrimis, corymbo multifloro, squamis obtusis, ligulis glabris.

28. No. 89, dovrense, hypophyllopodum, viridi-pallens, *caule* simplici folioso *apice in pedunculos paucos strictos* 1, *oligocephalos* cano-

floccosos et nigro-glandulosos *diviso*, oliis oblongis lanceolatisve dentatis, radicalibus petiolatis minoribus marcescentibus, *caulinis* sessilibus *superioribus basi cordata semiamplexicaulibus*, *involucris nigricantibus pilosis* squamis latis obtusis *ligulis ciliatis*, achæniis badio-fuscis.

H. fruticosum alpinum latifolium minus, uno alterove in summo flore. Raii Hist. iii. p. 178, Syn. Brit. 170, omnino.

H. amplexicaule accedens, *Smith*, Eng. Fl. iii.! in obs.

29. No. 146, H. virescens, *Sonder*, aphyllopodum, caule dense folioso, *foliis sessilibus* ovatis lanceolatisve *medio dentatis*, subtus crebre triplinervibus, anthela racemoso-corymbosa paniculataque basi foliolosa, *involucris basi attenuatis* nudis *squamis* sursum attenuatis *apiceque flocculosis* margine pallidis, stylo luteo fuscescente.

In Surrey, Angliæ, *Woods!*

JAMES BLADON.

Pont-y-Pool, July 22, 1850.

Note on Sagina procumbens with double flowers.

By the REV. R. C. DOUGLAS, M.A.

ON the 27th of last June, I found Sagina procumbens with double flowers, growing amongst Sphagnum in a small bog by the road-side about half way between Stafford and Rugeley. All parts of the flower, with the exception of the calyx, being converted into pure white petals, it presented a most beautiful appearance when seen through a magnfier. The occurrence of double flowers in a plant whose petals are usually so inconspicuous seems remarkable; is it not also the smallest known example of the double flower so much prized by florists? In Baxter's 'British Phænogamous Botany,' vol. iii. plate 199, there is a figure of this variety, from a plant grown in the Oxford Botanic Garden. In the text it is stated to have been "first found by the late Rev. H. Davis, author of 'Welsh Botanology,' on a green near Beaumaris, in the Isle of Anglesey, in July, 1817."

R. C. DOUGLAS.

Forebridge, Stafford,
August 12, 1850.

Contents of the 'Botanical Gazette,' No 20, August, 1850.

On the Coloration of the Water of the Serpentine. By A. H. Hassall, M.B. [Mr. Hassall attributes the colouring of the water to a confervoid plant, the Anabaina Flos-aquæ of himself and Dr. Harvey, and the Dolichospermum Thompsoni of Mr. Ralfs, but which he now describes under a new generic name, Coniophytum Thompsoni.]

Further Remarks on Fumaria Vaillantii and F. parviflora. By the Editor. [It appears that two species of Fumaria occur in the vicinity of Saffron Walden, growing intermixed, and both having probably been distributed among botanists under one or other of these two names; the specimens more or less commingled together, and the names therefore equally crossed.]

A Monograph of the Hieracia; being an abstract of Prof. Fries's 'Symbolæ ad Historiam Hieraciorum.' Continued from a former No. [The species are here enumerated and partly described, though neither in a very clear, nor very satisfactory manner; but whether this may be the fault of the English translation, of the German abstract, or of the original composition of Fries, would require careful collation to decide upon.]

Literature: Kunth's 'Enumeratio Plantarum,' Tomus v. Unger's 'Genera et Species Plantarum Fossilium.' Contents of various botanical journals.

Proceedings of Societies: Linnean Society. Botanical Society ot London.

Miscellanea: Record of Localities. On the Ciliary Movement of the Pollen-grains of certain Phanerogamia. Fedia carinata raised true from seed. Collections of Plants for sale.

Contents of 'Hooker's Journal of Botany,' No. 20, *August,* 1850.

Continuation of Mr. Spruce's Letters from South America.

Report on the Dried Plants collected by Mr. Spruce in the neighbourhood of Para. By George Bentham, Esq.

Continuation of Dr. J. D. Hooker's Letters from India.

Botanical Information: Eboë Nut. Chinese Rice-paper. Herbarium of M. Barneoud. Notes on Cleomella, by Dr. Torrey.

Notices of Books: New edition of the 'British Flora.' Woods's 'Tourist's Flora.'

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 987).

Luzula campestris. In dry meadows, barren fields, pastures, and sandy, heathy places on short turf; everywhere extremely common. Apse Castle, on the walks, &c.

Luzula multiflora. In damp, moory ground, turfy bogs, wet woods, thickets, and other moist or shady places; frequent. Between Ryde and the Priory. Wood by Little Smallbrook. About West Cowes. On the skirts of Lake and Blackpan Commons, in and about Apse Castle, and most other parts of the Isle of Wight, and doubtless equally common over the rest of the county. The var. *β. congesta*, with the clusters collected into a roundish, lobed head, is also frequent. Notwithstanding that some of our best botanists consider this plant a variety of the last, I cannot but be of opinion that Mr. Babington is right in deeming it, as did Smith, De Candolle and others, a good and very distinct species. The oblong, not globose, seeds, far greater size and height of the plant, and its different places of growth and general habit are all in favour of such a view of its nature. It has usually a very gray, and even hoary aspect, and flowers later than L. campestris. It is a pity that L. nivea should be retained on the list of British plants, if it be well ascertained to have been *planted* in the woods near Dunfermline; it is scarcely a species of western and sea-coast countries of Europe, nor does it range so far north as Scotland on the continent.

Alisma Plantago. In ponds, ditches, and slow streams, &c.; common everywhere. Herb quite inodorous.

Alisma ranunculoides. In ditches, drains and shallow pools. In several parts of the Isle of Wight, but by no means common. Abundant in marsh ditches at Easton, Freshwater Gate, and occasionally in other parts of the parish, and near Yarmouth, but much more sparingly. In Lashmere Pool, at the foot of Bleak Down, if not now destroyed by draining. Old clay pits in Hampstead brick-field, near Yarmouth, also in a pool between Yarmouth and Ningwood Common, in a field between the road and Leigh Wood, and in some old clay pits near Cranmore farm, in the same vicinity. Very rare in East Medina. In one or two of the marsh ditches in Sandown Level, towards Alverston, in tolerable plenty, with Polygonum minus, Sept. 1849. A plant or two at most in a little pool in a rough pasture field just beyond Coppid Hall, going towards Firestone Copse. Pond on Stapler's Heath (near Newport), Mr. C. D. Snooke. Very frequent on the mainland of the county, at least in South Hants. In the bog at the town end of Titchfield Common, sparingly. Margin of Sowley Pond, near Lymington. Ringwood. Extremely common in West Hants, as about Christchurch and in swampy pools a little south of the Christchurch-Road Station. Margin of Fisher's Pond, between Bishop's Stoke and Twyford. "In the river (Avon) about Sopley, Hants," Pulteney, Cat. of Pls. of Dorset. !!! Droxford Forest, Rev. E. M. Sladen. The whole plant when bruised emits an odour like that of Eryngium fœtidum or Muscari racemosum, but less powerful, and is probably in an inferior degree endowed with the antispasmodic properties of the former, which has obtained for it in the West Indies the name of Fit-weed.

Actinocarpus Damasonium. In shallow pools, pits and ditches, on a gravelly or clayey soil; very rare. Not found in the Isle of Wight. "It used, some years ago, to grow in a pool about two miles from Christchurch, on the Lyndhurst road," Mr. James Hussey (in litt.). The neighbourhood of Christchurch, watered by two fine streams, the Avon and the Stour, is rich in aquatic plants, the country being low and intersected by ditches, enclosing water-meadows that extend up to Ringwood and Fordingbridge. The Actinocarpus will probably be found in the eastern part of the county, as it occurs in several parts of Surrey, in Berks, and in Sussex; it is, in fact, an eastern and inland rather than a western and coast plant, and its occurrence near Christchurch is somewhat unexpected, and encourages the hope that the species may be found elsewhere in Hants. Little pools and plashes on gravelly commons are its most usual Surrey localities. Plant destitute of smell.

Sagittaria sagittifolia. In rivers, streams and ditches; not rare, but merely local, in Hants, and only known to me as inhabiting the west of the county, nor is it a native of the Isle of Wight. Frequen and abundant in the Avon and Stour; in the former I observed it all along its course at Fordingbridge, Harbridge, Ringwood, near Avon Cottage, and elsewhere, and in the Stour at St. Leonard's Bridge, Ilford, and very commonly at Christchurch, as well as in ditches near that town, between it and Sopley, &c. At Redbridge and elsewhere between that place and Romsey, in the river and canal. A form with very narrow, quite linear-lobed leaves is frequent here. The Arrow-head no doubt grows in other parts of the county, but is certainly not generally dispersed over it, as all my correspondents are silent respecting its stations, and I suspect it shuns the chalk wherever that formation predominates. This very variable but beautiful aquatic has been split up into several false or book species; the common American state of the plant, however, has far larger and broader leaves than in any European variety I have met with in Britain or on the continent, and may possibly prove distinct from ours hereafter.

Butomus umbellatus. In ditches, ponds and other still waters; very rare in Hants. Discovered, July 11, 1842, in extremely small quantity, by the Rev. C. Pritchard, in one of the marsh ditches at Easton, Freshwater Gate, where it still grows in this, the only known station for it in the Isle of Wight!!! It is said to grow at Twyford, near Winchester, but thought to have been introduced there, as I have a great suspicion it has been at Freshwater, from the very limited quantity and its confinement to a single spot. Pulteney (Cat. of the rarer Pls. of Dorset.) says it occurs in the Stour, part of which river is in Hants, and I feel pretty certain of having gathered a leaf of this plant in a ditch a little way out of Christchurch, on the Ringwood road, last autumn. It is stated to grow in streams near Newbury in the anonymous catalogue of the plants of that neighbourhood occasionally referred to in these Notes,* which must therefore be very near our limits, and since it is mentioned as inhabiting every county contiguous to this, its absence from the mainland Hampshire flora is in the highest degree improbable. Since the foregoing remarks were penned, I have confirmed the existence of this beautiful plant at Christchurch, by finding it sparingly under the railing contiguous to the second or easternmost bridge over a branch of the Avon, in June last, and picking a specimen just out of the town, towards Sopley, in flower, June 29.

Triglochin maritimum. Very abundant in salt-marsh meadows, pastures, and on mud-flats along the coast. Meadows behind Ryde

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* See p. 716 for the name of the compiler, and observations by the authoress.

Dover. Salt-flats about Yarmouth, &c. Equally common on the mainland.

Triglochin palustre. In wet meadows, pastures, and other marshy or boggy situations, but far less frequent than the last. Not very uncommon in the Isle of Wight, but from its slender habit, and growing generally amongst long grass and other herbage, often overlooked. In a meadow a little east of Langbridge, by Newchurch, where Utricularia minor grows, in plenty. In the meadow below Lower Knighton Mill, also in plenty. In the Cyperus meadow at Ape's Down. Moors between Bridge Court and Bow Bridge, near Godshill. Most profusely in a very boggy meadow a little above Newbridge, towards Calbourne Mill. In wet clay between Thorness Wood and the mouth of the Newtown river. Piece of wet, heathy ground close to Sheepwash farm, Freshwater, and by one of the marsh ditches at Easton, Sandown Level, and elsewhere occasionally. Plentiful on the banks of slipped clay along the shore between Whitecliff Bay and Bembridge, Mr. Thos. Meehan, jun. Near Newport, Mr. G. Kirkpatrick! Equally frequent, I presume, in mainland Hants. I have remarked it in a salt marsh near the Lymington River, but find no personal notice of it elsewhere amongst my memoranda. Warnford, Rev. E. M. Sladen. Andover, Mr. Wm. Whale. Readily distinguished from T. maritima by the suppression of just half the fructification; the rudiments of three of the cells of the combined carpels appearing like a hollow, tapering rib in the angles of the three remaining cells. The scent of both species is equally strong and odious, exactly like that of bugs. I see no great reason why the curious Scheuchzeria palustris should not be found on our Hampshire bogs and marshes, having already been detected as far south as Shropshire. As remarked when speaking of Cypripedium, at page 917, this and many other plants, as Pyrola, Trientalis, &c., though found only in or towards the northern part of the kingdom in Britain, descend on the continent into latitudes considerably lower even than our own, proving that they are not essentially very northern species, although evincing a boreal tendency in their distribution with us. The more recent researches of botanists have greatly extended the southern limits of Linnæa borealis, Convallaria verticillata, Listera cordata, Habenaria albida, Saxifraga Hirculus, and Campanula latifolia,—species known originally in Scotland or the north of England only, but some of which are now ascertained to inhabit the midland and even the southern counties of England, in exact accordance with the law of indefinite or irregular distribution of plants towards their equatorial boundaries adverted to at p. 365 of this volume.

The name for the order to which the present genus belongs, Juncaginaceæ, is injudiciously chosen, as liable to be confounded with Juncaceæ. I would propose to substitute Triglochinaceæ, as being at once unequivocal and identical, seeing that Juncago was but an old word for Triglochin, and used for it generically by Tournefort and others until supplanted by the latter.

Typha latifolia. In ponds, ditches, pits, sides of rivers, and other marshy places; not unfrequent over the county and Isle of Wight. Scarce about Ryde; in a little pond near Beaper farm, and sparingly in the brook between St. John's and Little Smallbrook farm. By the Medina at Shide Bridge, Newport, abundantly. Marsh below Carisbrook Castle. Marsh ditches at Gurnet Bay, with the following species. Very large and plentiful in a pond by Kingston Copse. In the stream (East Yar) both above and below Horringford Bridge. Near the western arm of the Newtown River, with the next. By the great pond near the church in the grounds of Gatcombe House, and in the upper pond at Knighton House, abundantly. Little pool between Stapler's Heath and the farm. In clay pits of Squires's brick-field, at Ningwood. About the Medina and Yar, in plenty, Mr. W. D. Snooke in Fl. Vect. !!! In a little pool under the cliff at Foreland, Dr. T. Bell Salter. Common, I believe, in most parts of mainland Hants. Observed in one or two places in Hayling Island, Portsea Island, along with the next. Profusely in the Itchen River at King's Worthy, near Winton. Langston, near Havant, and generally dispersed. Cams, near the shore; Fontley Iron-mills (near Fareham), Mr. W. L. Notcutt. The green leaves are collected, and after drying in the sun are used in this county instead of bulrushes, for mats, chair-bottoms and basket-work, under the name of flags.

Typha angustifolia. In similar places with the last, and rather the more common of the two with us, in the Isle of Wight at least, especially in old clay pits. In the marsh-meadow ditches, Gurnet Bay, plentiful, but rarely, I believe, flowering there. Almost filling a pool surrounded by woods near Cockleton farm, W. Cowes, nearly eight feet high and flowering abundantly. Little pool at Pallance Gate, on the north side of Parkhurst Forest, and flowering freely. Pond between Wootton River and King's Quay, along with T. latifolia. In a wet wood near Alverston, called Bordwood or Borthwick Lynch. Pool between Great Thorness and Elmsworth farms, with

Myriophyllum alterniflorum. Pool close to the rectory at Shalfleet. Extremely common in pools and watery pits on the heathy ground about the western side of the Newtown River. I find it on slipped land below the cliffs at Luccombe, but, as will be seen from the foregoing stations, this species is far more frequent in West than in East Medina. Var. β. Leaves extremely narrow. In vast abundance, and flowering freely, in some old clay-pits in a rough, heathy waste a little east of Cranmore farm, near Yarmouth and adjoining Ningwood Common, as also on another piece of heathy ground near the western arm of the Newtown River, along with T. latifolia. Abundant, but not freely flowering, in the clay-pits of the brick-field at Lower Hampstead, near Yarmouth. This variety differs in no respect from the usual state of the species, excepting in the excessive narrowness of the leaves, which are scarcely one-third of an inch wide. Frequent, probably, over the rest of the county. Abundant in a pool on Hayling Island. Covers acres in the shallows of Sowley Pond exclusively. Besides the more universal names of Cat's-tail, Reed-mace, and sometimes (but erroneously) Bulrush, by which this genus is known, the pistillate flower-spikes are called in this island Black-puddings, Blackamoors, Black-heads and Bacco-bolts, from their likeness to rolls of tobacco, and remoter resemblance to the other elegant articles just enumerated. The heads of T. latifolia are employed, it is said,* by the velvet weavers of Spitalfields for cleaning their work, and are also sold to the poor as a cheap but efficient hat-brush. I have heard of their being used here occasionally for stuffing mattresses, but the property which the pappus possesses of felting, and its want of elasticity, must make it a very unfit substitute for feathers.

There seem good grounds for believing that T. minor will ere long be confirmed to the English flora. In Hall's 'Flora of Liverpool' it is stated that there are specimens of this plant in the herbarium at the Botanic Garden of that town, gathered in 1801, from a large marl pit north of Little Crosby. I have myself a distinct recollection of having seen examples some years ago, collected, I believe, in Kent, and sent to the late Mr. David Don, in whose possession I feel pretty certain they were when I saw them, which must have been at the Linnean Society.† The species is extremely local in Europe, but geographical reasons are not greatly opposed to its occurrence in the south of England. Parkinson gives three species as native to England, and both his description and very rough figure of his Typha minima, Least Reede-mace (Theatra. Bot. p. 1204, furthest fig. on the right), leave little doubt of the true plant being the one intended. Gerarde also speaks of having found a smaller kind of Cat's-tail in the Isle of Shephy, but it may have been only T. angustifolia, as no figure or description accompanies the notice. T. minor would seem to flower at least two months earlier than the other species, namely, in April and May.

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* Loudon's Mag. of Nat. Hist. vi. p. 367.

† The Rev. G. E. Smith says that T. minor grows with T. latifolia in a dyke at West Hythe, Cat. of Pls. of S. Kent, p. 60. If there be no misprint here of T. minor for T. angustifolia, this would seem to confirm the reports and accounts of the occurrence of the former in England, as given above.

Sparganium ramosum. In ditches, pools, slow rivers and streams; very common throughout Hants. Abundant in Sandown Level, Gurnet Bay, Freshwater Gate, &c. Of immense size in a pond near Freshwater farm, four feet high, with very broad leaves. Lowermost stalked head of flowers usually in the axil of the undermost leaf.

Sparganium simplex. In ditches, &c., with the last, but much less frequent. In several ditches on Sandown marshes, and frequent in ditches between Brading and St. Helen's. Abundant in Lashmere Pond, at the foot of Bleak Down; possibly now destroyed or made much rarer by the late drainage. Not uncommon in mainland Hants, as about Christchurch, Romsey, Winchester, &c. Near Place House; Side of Titchfield River, Mr. W. L. Notcutt. Warnford, Rev. E. M. Sladen. Always much, and often many times smaller than the last, and of a paler green. As Dr. Salter has remarked to me, the lowermost stalked head of flowers has its peduncle arising from the main stem, springing considerably above and not from the axil of the undermost leaf, but this is not invariably the case.

Sparganium natans. In slow streams, rivers, ponds and pits; plentiful, I believe, in several parts of the Isle of Wight, but very rarely flowering, and therefore not identified with this species in that condition with absolute certainty. Abundant in the Medina at Shide and Blackwater, and in the East Yar above Sandown Level, towards Alverston, in various places; very profusely in the stream above Alverston Mill, but never, I think, flowering there or in any of the running waters of the island, however slow the current may be. I found it in considerable plenty, and flowering freely, August 20, 1840, in some little pools (old clay-pits), called, as well as I could catch the name, Appey Pools, on a small common a little to the east of Cranmore farm, near Ningwood, and which are nearly filled with Typha angustifolia. I have not seen the inflorescence in any other spot in the island or on the mainland of Hants, where I believe to have remarked the sterile form in the swift streams at Winchester, Bishop's Stoke, and most of the larger rivers and streams throughout the county, in great plenty.

Acorus Calamus. In ponds, ditches, and by river sides; very rare? Not found in the Isle of Wight. Winnal water-meadows, by Winchester, Dr. A. D. White !!! I find it in tolerable quantity along the banks of the river, beginning about a quarter of a mile above Deangate Mill, and continuing at intervals for perhaps half a mile up the stream, on both sides, but flowering very sparingly. Occurs, in all probability, in various parts of the county, but is perhaps overlooked for Sparganium ramosum, the leaves of which it greatly resembles, but may be distinguished at some distance from them by its remarkably brighter and lighter green, and by the wavy appearance of the ensiform leaves and scapes, that look as if crumpled into plaits or puckers along one of their margins, which is very seldom seen in the Sparganium, and then only accidentally. But the fine fragrance of the whole plant when bruised or broken, like that of fresh orange-peel, is the surest test to know it by when not in flower, a state it is seldom seen in, but sparingly, as at the station just given. Pulteney (Cat. of the rarer Pls. of Dorset.) says it grows in two or three places in the Stour between Blandford and Sturminster Newton, and it would probably reward a search along the Hampshire part of that river and its beautiful rival, the Avon, which both flow through fine water-meadows and are richly adorned along their banks with aquatic plants. Morison (Hist. Plant. iii. p. 246) says it grows about Headley, a village near the Surrey border, a few miles north of Liphook.

I have a lurking suspicion that the Sweet Flag may not be aboriginal to Britain. Neither Gerarde nor Parkinson speak of it as known to them in a wild state in their time, nor is it once alluded to by Turner in his 'Herbal.' Yet had it been as common in the days of these writers as it is, or was till lately, about Norwich and other chief towns of England, it is difficult to imagine that a plant then much esteemed medicinally, and the roots of which were an article of importation from the Levant, could have passed unobserved by the earlier herbalists and simplers.

Arum maculatum. In woods, thickets, groves, on hedge-banks, grassy borders of fields, often also in meadows and pastures; in profuse abundance throughout the Isle of Wight, and not less so in most, if not all, parts of the county. Our hedge-banks in the spring and early summer are covered with the leaves, which by the middle of June have quite disappeared, and as perhaps not one plant in twenty flowers and seeds, the species would seem to anybody who had not witnessed its superabundance in spring, to be comparatively an unfrequent one. Here the Arum is the earliest and surest harbinger of that welcome season, its leaves never failing, except in unusually severe weather, to emerge from the ground during the first week in February,* and to attain their full dimensions in March, when they are often seared by the cutting east winds on exposed hedge-banks. I have occasionally found a few specimens in flower in that month in the Undercliff, although its proper season of inflorescence in this county is from the middle of April till the beginning of June. Var. β. Leaves without spots; almost as common as the spotted state. Var. γ. Leaves veined with greenish white; about Bonchurch and Steephill, not uncommonly. The varieties with spotted and plain leaves are almost equally common with us, and grow intermixed; yet Reichenbach, with his usual mania for "splitting," makes two species of them, A. vulgare and A. maculatum, and remarks, after giving the supposed characters of each, "Utramque jam vivam observo, in eodem loco A. maculatum per octo dies precocius est immaculato."† In this county I can perceive no difference in the time of flowering, and the leaves of both are alike variable in size and shape. The spotted form would appear to be rarer towards the north, where, as in Sweden and Denmark, this variety is nearly an entire stranger. Specimens occur with us occasionally in which the leaves are broadly veined with greenish white, as in the foreign A. italicum, by many botanists regarded as a variety merely of our A. maculatum. The former, with which I have been long familiar in the south of Europe, is a much larger plant than ours, the leaves more perfectly hastate, with very divaricate lobes, that stand out at nearly right angles to the midrib, which, as well as the lateral veins, are for the most part strongly marked above with white; the leaves, too, are more uniform in shape, and do not exhibit the same great diversity of outline as in A. maculatum, besides which they are habitually evolved at the close of the year, and remain green through the winter, which is rarely the case with the other, and then only, as it were, accidentally in warm, sheltered situations, by a sort of natural forcing. A. italicum is the prevailing species over the south and south-west of Europe, where A. maculatum is seldom seen except in elevated places. I remarked it, on a journey from Orleans to Bordeaux, to make its first appearance on approaching Potiers, after which it became common, and about Bordeaux is everywhere to be met with, ranging all along the western maritime departments of France into Britanny as far as 48°, or perhaps higher.* Throughout Italy no plant is more abundant than this Arum,† even in the most open, sunny exposures, not being the shade and moisture-loving plant that A. maculatum is, nor does it, like that, inhabit the more interior countries of the European continent under its limitrophe parallels, as Switzerland, Hungary, Austria proper, &c., where A. maculatum is frequent. Yet I must own to having observed states of A. italicum that seemed to connect it pretty closely with A. maculatum, which in its turn often approaches its southern congener in size and outline, and, as we have seen, in having the leaves occasionally marbled with white. It is well known that in Portland Island a large quantity of a beautifully white and highly nutritive farina is prepared from the tubers of A. maculatum, which chiefly finds a market in London, for the use of invalids, under the name of Portland Sago. Were the demand general, the Isle of Wight could alone furnish an inexhaustible supply of this valuable production, now in a great measure neglected, because not conventionally adopted as an article of consumption by all classes. In ruder states of society, mankind eagerly seek out and appropriate those spontaneous gifts of Nature which in more civilized communities are overlooked or contemned. The savage starves not, for the field and the forest are his granary on which he relies for unbought and untoiling subsistence; the poor of our land perish if the hand of bounty be withdrawn, for they must be fed with the purchased food which labour prepares for the rich as well as the needy. It is probable the young, fresh leaves of our Wake-robin might, when boiled, which would dissipate their acrimony, furnish an excellent spring Kale, as do those of Caladium esculentum and other tropical Araceæ in the West Indies. As an object of cultivation, A. italicum, from its larger size and therefore greater yield, would doubtless be preferable to our native species.

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* I have even remarked them springing up at the close of autumn at Bonchurch, where in very sheltered spots, as near the old church, they are persistent the winter through, as in Arum italicum.

† Fl. Germ. Excurs. i. adden. et corrig. p. 138.

Lemna trisulca. In clear, stagnant water of pools and ditches. Ditches in Sandown Level, abundantly; very profusely in those immediately around the Fort. "Ditches in the marsh at Easton (Fresh-

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[*] I should never be surprized at hearing of its discovery in Devon and Cornwall.

[†] At Rome, for instance, I remarked it on every bit of waste soil within the walls, where, from its abundance and luxuriant growth, it forms a most picturesque adjunct to the natural foreground, which the artist gladly transfers to his canvas.

water Gate) and about Sandown, in abundance," Mr. W. D. Snooke in Fl. Vect. !!!

Lemna minor. In almost every ditch, pool or plash of stagnant water, whether clear or otherwise, throughout the county and Isle of Wight.

Lemna polyrhiza. In clear, stagnant water of pools and ditches, &c. Abundant in marsh-ditches between Yarbridge and Yaverland, as well as in other parts of Sandown Level. Ditches in Easton Marsh, Freshwater Gate. Near Petersfield, and common probably throughout the county.

Lemna gibba. In standing water; rare? In a small pond near Yafford farm, Isle of Wight, with L. minor, Oct. 1845. I found it some years ago in a ditch near Lymington, with Hydrodictyon utriculatum. Mantling a pool close to Chapel farm, Oakhanger, near Selborne, Sept. 1848. Probably not uncommon in the county.

The following list of Hampshire Potamogetons falls, I am convinced, considerably short of the actual number existing in the county. In the Isle of Wight their amount, like that of other aquatic plants, is extremely limited, and the opportunities have hitherto been few of extending my acquaintance with the species of the mainland.

Potamogeton natans. In ponds, ditches and slow streams; frequent.

Potamogeton oblongus. In wet ditches, on bogs, and marshy spots or plashes on heaths and commons; frequent, I think, in the Isle of Wight, and perhaps equally so over the whole county. On Lake and Blackpan Commons. Bog at Cockleton, near W. Cowes, &c.

Potamogeton plantagineus. In similar places with the last; rare? It has not occurred to me in the Isle of Wight. Titchfield Common, in profusion, Mr. W. L. Notcutt!

Potamogeton lucens. In ponds and ditches; probably common throughout the county. Marsh-ditches at Sandown. Pond at Holy Water, Wolmer Forest.

Potamogeton perfoliatus. Ponds, lakes, streams, &c.; rare? Not found in the Isle of Wight, nor have I myself yet seen Hampshire specimens. "A very common species in Surrey and the neighbouring parts of Hants," Mr. W. W. Reeves (in litt. 1848).

Potamogeton crispus. In ditches, pools, &c.; common probably throughout the county. Abundant in the marsh-ditches at Easton, Freshwater Gate, and in those at Sandown. Pond at the brick-kiln, Bembridge, Dr. T. Bell Salter.

Potamogeton pusillus. In ditches and other stagnant water, either fresh or brackish; most likely common along the coast. In marsh-meadow ditches behind Ryde Dover, abundantly, and in Brading marshes, in profusion. Marsh-ditches between Brading and St. Helen's, Mr. Fred. Townsend !!! Ditches in the marsh near Easton, Mr. W. D. Snooke in Fl. Vect. !!!

Potamogeton zosteraceus, Bab. Man. (not of Fries, according to Mr. Borrer). In the Avon, in the meadow next above the bridge at Christchurch, where the river is quite full of it, Mr. Borrer !

Potamogeton pectinatus. In ditches, pools, &c., both fresh and salt. Ditches around Sandown Fort, 1842, and in those on the marshes at Brading, 1844. In a small pool on the marshes at Barnfield, near Yarmouth, July, 1844. Marsh-ditches at Easton (Freshwater Gate), Mr. W. D. Snooke in Fl. Vect., where it occurs in great profusion, and seems to be the large-fruited salt-water variety of the plant, the P. marinus of Linn., &c. !!! Ditch at Hill Head (near Fareham), Mr. W. L. Notcutt !, and most likely common over the county, principally, perhaps, on the coast.

Potamogeton densus. In ditches, pools, rivers and slow streams (always in fresh water ?); common, no doubt, in the county. Marsh-ditches at Sandown, and abundantly in those at Easton, Freshwater Gate. Cattisfield; pond at Uplands; Hill Head; (all near Fareham): Mr. W. L. Notcutt. Anacharis Alsinastrum, or at least the Hampshire (Leigh Park) plant included under that name, but which a recent examination has convinced me does not differ in any essential particular from Udora verticillata of North America, when growing immersed in its native waters, bears no slight resemblance to small states of this Potamogeton, which may possibly be the main cause of the former existing so long unobserved in this country.

Ruppia maritima. In salt-water ditches and pools; frequent. Ditches behind Ryde Dover. The ditches between Springfield and Old Fort are almost filled with this and Zanichellia. In salt-ditches about Yarmouth and Freshwater, plentifully. Common, I think, all along the coast of Hants about Lymington, Portsmouth, &c. I am not just now prepared to say to which of the two species or varieties (R. maritima or R. rostellata, given as British in the 'Manual') our common Hants plant should be referred, but I believe rather to the latter. It is probable, however, that we may possess both.

Zanichellia palustris. In ponds and ditches, both of fresh and salt water; not uncommon in the Isle of Wight, and I conceive probably as frequent on the mainland of the county. Ditches behind Ryde Dover, plentifully, and profusely in those between Springfield and Old Ford, to the eastward of Ryde. In a pool on a moory pasture near Mottiston Mill, in plenty. Ditch at Hill Head (near Fareham), Mr. W. L. Notcutt.

Zostera marina. In shallows, creeks and inlets of the sea, the mouths of tide rivers, and salt pools; common. Profusely in the shallow water of the shore at Ryde, about the pier, &c., where it is thrown up all along the coast in great quantities after heavy gales. At the mouths of the Yar and Medina, and plentiful in the pools of salt or brackish water on the marshes between Yarmouth and Freshwater. Profusely in the Southampton River, just below the town, retarding the progress of wherries and other small craft through the water, and clogging the bars in rowing. Plentiful in most other places along the coast of Hants.

Zostera nana. In similar places with the last, and perhaps not uncommon. At Wootton Bridge, in small quantity, just by the bridge itself, 1848, and found abundantly the same year by Dr. T. Bell Salter on the black mud of Brading Harbour, a little above the mill!! I have not yet seen flowering specimens, but those found by Dr. Salter and myself perfectly agree in size and character of the leaves with the beautiful figure in E. B. Suppl. t. 2931, and excellent accompanying description, as well as with the scarcely less beautiful icon in Fl. Danica, xii. t. 2041 (Z. Notki). Found in Portsea Island, at Gatham Haven, Doody in Ray's Syn. 3rd edit. p. 53. I think from the description here given, there can be little doubt of Doody's plant (No. 4, Potamogeiton marinum, &c.) being our present species. No. 5 (same page), or Doody's Alga angustifolia vitrariorum, found by him with the other in the same station, I suppose may be the Zostera angustifolia of Babington's 'Manual' (is that identical with the Z. marina, β. *angustifolia*, of Fl. Dan. ix. t. 1501?), of which I know nothing, and from the very short specific character should fear was hardly distinct from the commoner broad-leaved Z. marina. Mr. Babington attributes *broad* leaves to his adopted species, Z. angustifolia, perhaps a misprint for *narrow*, and if it be the same with the variety depicted in Fl. Dan. t. 1501, they are quite as linear as in Z. nana, and little, if at all, longer than they are drawn and described in that plant in the supplement to E. B. How far Z. nana and Z. angustifolia are entitled to rank as good species I will not undertake to say with my present very imperfect acquaintance with the one, and utter ignorance of the other excepting through figures.

Cyperus longus. In damp or wet meadows and along the marshy sides of rivulets; very rare, and as yet not known to inhabit the mainland of the county. First found by myself in considerable plenty in a low meadow at Ape's Down, on the road from Newport to Yarmouth, about two miles west of Carisbrooke, Aug. 10, 1839. Meadow below Carisbrooke Castle, on the west side, but in extremely small quantity, Oct. 1839. Not now to be found there. In profuse abundance in a low marshy meadow, called Castle Mead, at the extremest south point of the island, Sept. 10, 1839. For a further account of these stations, see Phytol. i. p. 131. I question much if the Cyperus is now to be found at the Ape's-Down station, at least in any quantity, as the meadow was about to be drained a few years back, and flowering specimens were not often procurable latterly when the grass began to be regularly mown for hay; still I have not visited the spot for some seasons past, and speak on conjecture alone. But at Castle Mead, this most beautiful plant may be annually collected in any quantity, which was hardly the case till within these last three or four years, as the former occupier of the land invariably cut it down as fodder with the other marsh herbage about the time when it was in perfection. The Castle Mead now forms part of the property of my friend George Kirkpatrick, Esq., of Windcliff, Niton, who not only allows the Cyperus to grow unmolested by the scythe, but in his zeal for its preservation has fenced in that part of the meadow, so that by his care and liberality a never-failing supply of specimens is effectually secured to all who wish to procure them at the proper season, which is from about the middle of August to the end of September or beginning of October, not July, as most of our books give for its flowering time. The plants here grow as thick and close together as reeds, and with their bright green, polished stems and leaves, long, gracefully curved involucral bracts, and ample, elegantly drooping panicles, with digitately spreading spikelets, of the richest chestnut and green, call to mind the idea of some tropical inmate of the stoves and conservatories.* Many of the individuals exceed four feet in height, and one amongst others of equal elevation, that I measured in October last, was four feet eight inches from the ground to the base of the panicle, which latter might be about a foot higher; the largest of the three, very unequal involucral leaves being commonly nearly two feet in length. I have hitherto uniformly failed in procuring ripe seed of Cyperus longus in this station; the locality is probably too wet, and the plant increases too much by the creeping root to perfect seed; in the drier and warmer soil and air of a garden the fruit would perhaps come to maturity, could the species be brought to thrive in such a situation, which with me it refused to do. Every part of this plant emits a faint but sweet and agreeable odour, altogether peculiar to itself, and which, though it continues to be long exhaled, is only perceptible under certain circumstances by momentary impressions, as on entering a close room or opening a box in which a number of specimens are contained.* I know of nothing to which this scent can be likened; perhaps that of cedar comes nearest to it, but the analogy, if any, is very remote. The root of the wild plant differs much in degree of aroma according to the soil; with us here it has merely a faint, sweetish odour like the rest of the plant, and a slightly warm, bitterish taste, hardly deserving of being called aromatic, but probably acquiring more of that character when dried. Perhaps, too, in the warmer and less humid soil of a garden these qualities are alone developed in the degree attributed to the species. Brotero, however, remarks that the root is often inodorous as well as sweet-scented in Portugal, and Mr. G. E. Smith describes his Kentish examples as possessing the peculiar fragrance of the species in perfection. When planted in water I find the herbage developed at the expense of the panicle, which then becomes extremely depauperated, the spikelets assume a pale green colour, and the beauty of the species is in a great measure destroyed. From the name, English Galingale, given it by the old herbalists, I think it likely to have been more frequent formerly in the wild state before the country was so much drained and enclosed as it is in our time, and I am convinced that were attention specially directed to the search, Cyperus longus would be found in many more places than it is known to grow in at present, and that it would finally be ascertained to inhabit every county along the south coast from Kent to Cornwall, increasing in frequency westward. It was this conviction, drawn from geographical considerations, that mainly led to its discovery by myself in the Isle of Wight; the probability of its occurrence in this part of England seemed to me so strong that I kept it constantly in view during my herborizing excursions, and every field botanist knows how greatly the detection of a rare or local plant is facilitated when the mind is bent on its discovery from well-grounded hopes of success in the attempt. I have little doubt the Cyperus longus grows on the mainland of Hants; it was formerly found in Purbeck, where it has been more recently detected by Mr. J. Hussey at Ulwell, a hamlet about a mile and a half from Swanage. In Wilts it occurs in plenty at Boyton, not far from the residence of the late A. B. Lambert, Esq., a remarkably inland station; and I think it has of late years been found in Cornwall by Miss Warren, in which county and in Devonshire I should expect it to be more frequent than in any others. Flowering very late, when other Glumaceæ (both Cyperaceæ and Gramina) are quite past for the season, and the panicle being often extremely reduced or depauperated, the species easily eludes observation, or is passed by at that or an earlier period, before the inflorescence is developed, for some Carex, especially C. vulpina, to the leaves of which those of the Cyperus bear a very close resemblance. But its presence on any spot may at once be ascertained, even when so masked, by the fragrance and aroma of the black, creeping rhizoma, which, however weak, is always sufficiently perceptible to distinguish it from every species of Carex resembling it.

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* If I mistake not, C. longus is the largest and handsomest European species of its genus, from which the much taller Papyrus of the ancients (*P. antiquorum*), found in Calabria, is now removed.

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* I remarked it to be very powerful when treading amongst the specimens at Castle Mead, yet it is not given out by breaking or crushing the plant, like many other scents, but is rather a subtle emanation from the whole surface, as in Malva moschata. The figure of this species in E. B. is very indifferent, and conveys no idea of the graceful slenderness and rich colouring of the spikelets; the panicle, too, is drawn as if erect, and is so described in our books, whereas, in fact, it is always lax, and when large even drooping.

N.B.—*Cyperus fuscus* will, I feel confident, be eventually found to inhabit this county, and probably all the adjoining ones. It should be looked for in August and September, on wet, sandy ground on the grassy margins of pools and ditches, &c. Strange it is, that even this humble annual, although the most northerly species of its genus known, and a native of every country of Europe as far as Denmark and the south of Sweden (lat. 55—56), and from the westernmost shores of our continent across its entire breadth into Siberia, should nevertheless have been unable to escape that suspicion of foreign introduction which is endemic amongst the botanists of Britain, a class complaint, terribly infectious in our atmosphere, it would seem, but very little known in other countries. Accordingly, we find Cyperus fuscus in the fourth and fifth editions of the 'British Flora' marked with the asterisk, as one of those plants "which have become naturalized through the agency of man;" and I remember, before its discovery by Mr. Salmon in a second and distant British station, having been obliged to contend strongly for its indigenous origin at Chelsea against a most excellent, learned and amiable naturalist, who insisted that it could have no just title to be considered British, and deemed its introduction due to human agency. I even ventured to predict its speedy detection in other parts of the kingdom, and am now of opinion that it will ultimately prove more frequent and widely dispersed over the land than C. longus, because this last is a more southern and far less hardy species than the other, and is scarcely known on the continent of Europe under British parallels, excepting in one or two places in Belgium,* whilst C. fuscus, as we have before remarked, has a very wide range of distribution, both in latitude and longitude. It is worthy of notice, that even the discoverer of C. fuscus near Godalming appears unable to divest himself of some of those misgivings which seem constitutional to British botanists, since in his announcement of the fact of its occurrence at Peat pond he says: "Has Mr. Mill or any other gentleman carried out the suggestion in the article referred to (dissemination of seeds artificially), by introducing the plant here?" It is not twenty years since Polygonum dumetorum was first observed in this kingdom, and now there are few of the southern counties of England in which it remains undiscovered; yet did this conspicuous plant share the fate of most other novelties to our vegetation in being stigmatized with the brand of an interloper in the fourth edition of the 'British Flora.' I have visited both the English stations for C. fuscus, and am astonished how any one could imagine it likely that the plant was introduced to either. For my own part, I am prepared to hear C. fuscus announced as found in Yorkshire, and think C. longus will probably be found to range westward into the south and south-west of Ireland. Cyperus flavescens, the only other species of the genus that can reasonably be looked for in Britain, may very possibly be found hereafter with C. fuscus, its common associate on the continent.

Schœnus nigricans. On turfy, moory bogs; very rare. Townhill Common (near Southampton), the late Mr. N. J. Winch in New Bot. Guide. Bog on the east side of Gomer Pond (near Gosport), but confined to one spot, Mr. Borrer. I have not yet seen Hampshire specimens of this plant, which has not occurred to me in the Isle of Wight, but I suspect it will be found to be not very uncommon on our forest bogs in the south-west of the county, and elsewhere. Dr. Salter finds it in plenty in some places near Poole.

Cladium Mariscus. In deep turfy or peaty bogs, and fenny places; extremely rare in the Isle of Wight. In the marsh at Easton, Freshwater Gate, Mr. J. S. Mill!!! I am indebted to the kindness of Mr. Mill for the only flowering specimens I possess, from the above and sole station for this fine plant in the island, where it was tolerably plentiful a few years back in one or two of the further meadows, but has now become, I think, nearly extinct, partly, perhaps, through draining, and because, being cut with the coarse herbage of the meadow for hay, it has not, since Mr. Mill gathered it in that state, been allowed to flower and seed, were it so disposed.* Very fine and profusely plentiful on a tract of boggy ground at Gower Pond, near Gosport, as noticed there by Mr. Borrer !!! † Portsea, Rev. G. E. Smith in New Bot. Guide, but I do not know in what part of the vicinity of that suburb of Portsmouth my excellent friend finds it. In great plenty in half-boggy, half-moory ground on the east side of Sowley Pond, near Lymington, in ripe fruit, Sept. 26, 1849, but not flowering in any abundance on that station. This, the tallest and stoutest of our native Cyperaceæ, grows, doubtless, in other parts of the county. The excessively stiff, glaucous and deeply channelled leaves are formidably armed along the edges and keel with hard cartilaginous serratures, with incurved points, capable of wounding severely if incautiously handled; in this respect, and in the structure of the bony fruit, evincing its affinity to Scleria, of which genus the present is the nearest European representative.

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* At Burtscheid, near Aix la Chapelle, &c.

Rhynchospora alba. On spongy, turfy bogs, wet moors, and marshy spots on heaths and commons; not very frequent, though I believe generally dispersed over the county. Decidedly rare in the Isle of Wight. On the marshy skirts of Lake or rather of Blackpan Common, in one or two spots abundantly. I remarked it on the moors at Bournemouth, and I think also on Wolmer Forest; at the former place Mr. Borrer found it growing with Malaxis paludosa, and of unusual height, which served me as one mark to look for the Malaxis, but *that* I could not fall in with last year in Mr. B.'s station. Short Heath (near Selborne), Dr. T. Bell Salter. Titchfield Common and Botany Bay (near Southton), Mr. W. L. Notcutt. Common about Southampton, Mr. Winch in New Bot. Guide, and I have no doubt in a great many other localities. The variety with brownish spikelets (β. sordida of Babington's 'Manual') I do not remember to have met with in Hants. This latter form runs some risk of being mistaken for the following.

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* The Rev. G. E. Smith has remarked to me, that for the full development of the inflorescence of Cladium Mariscus, the absolute contact of water with the roots seems necessary, an opinion my own experience confirms. The soil of these meadows has become too dry apparently for some years past to sustain any longer the Cladium in healthy vegetation; hence, doubtless, the more efficient cause of its rapid diminution in quantity and stature since Mr. Mill first detected it at Freshwater.

† Gomer Pond.

Rhynchospora fusca. In similar places with the last, but much more rarely, and probably confined to the western side of the county. Not seen in the Isle of Wight. Bog by, and to the west of, the railway at Christchurch station, on the north side of the railway, where the stream passes under it; and in the bogs near the railway east of the station, Mr. Borrer !!! Plentifully in a bog between Southampton and Lymington, Petiver, apud Ray's Syn. p. 427. A rare and interesting species, well characteristic of the transition so often before noticed in our county flora from the eastern to the western type.

W. A. Bromfield.

Eastmount, Ryde, Isle of Wight.

(To be continued).

Botanical Society of London.

Friday, August 2, 1850. John Reynolds, Esq., Treasurer, in the chair.

A paper was read by Dr. Arthur Hassall "On the Adulteration of Coffee." The author commenced by observing that the inquiries, the results of which he was about to detail, originated in a remark made in the House of Commons during the late debate on chicory, to the effect that no means had been yet discovered by which the adulteration of coffee with that substance could be determined. The recollection of the fact, that in vegetable charcoal the component parts of the several tissues may be detected by the microscope, led Dr. Hassall to infer that by the same means the less completely charred cells and vessels, &c., forming the tissues of those substances employed in the adulteration of coffee, might likewise be discovered; an expectation fully realized. In this way it was ascertained that the substances most frequently used in the adulteration of coffee are chicory, roasted wheat, colouring matter, and occasionally beans and potato-flour. The structure of the coffee-berry, and of the several productions just named, were then minutely described; and it was shown that chicory might at all times be distinguished from coffee with the greatest ease by the size and ready separation of the cells, as well as by the presence of bundles of cells of a dotted or interrupted spiral kind. The substance so generally employed to deepen the colour of coffee Dr. Hassall found to consist, in those instances in which he had examined it, of burnt sugar, and he referred to the fact that the rich brown hue of coffee is not peculiar to a decoction of that berry, but that almost all vegetable substances when charred yield a somewhat similar colour. The author then proceeded to detail the results of the thirty-four examinations of coffee, of all prices; from these it appeared that the whole of the coffee, with two exceptions only, was adulterated; that chicory was present in thirty-one instances, roasted wheat in twelve, colouring matter in twenty-two, beans and potato-flour in one only; that in ten cases the adulteration consisted of a single article, in twelve of two, and in ten of three substances; and that in many instances the quantity of coffee present was very small, and in others not more than a fifth, fourth, third, half, and so on. Contrasting coffee and chicory, it was observed, that while the coffee-berry contains a large quantity of essential oil, visible in small drops in cells, and upon which the fragrance and actual properties mainly depend, not a trace of any similar oil is to be found in the chicory root. The properties of coffee are those of a stimulent and nervine tonic, with an agreeable flavour and delicious smell, not one of which properties is possessed in any degree by the chicory root, it being rather aperient. Dr. Hassall regards chicory, therefore, as in every respect inferior to coffee, and observed that if its employment be deemed in any way desirable, it should be sold openly, and not, as at present, under the names of Ceylon, Berbice, Costa Rica, Mocha coffees, &c. The paper, which contained many other interesting details, was brought to a conclusion by one or two hints, addressed to coffee drinkers, namely, that coffee should be ground fine, in order to facilitate the liberation of the essential oil contained in the cells of the berry, and that an infusion and not a decoction of it should be made.—*G. E. D.*

Plants found in Devonshire and Cornwall, in addition to those contained in Jones's 'Flora Devoniensis,' and in Art. LII. of Part 1 of the 'Phytologist.' By Isaiah W. N. Keys, Esq.

If you can find a place for the accompanying list of plants, as an humble addendum to the Rev. W. S. Hore's interesting paper (Phytol. i. 160), the readers of the 'Phytologist' will be in possession of a tolerably complete list of the species which have been noticed in this neighbourhood since the publication of the 'Flora Devoniensis.' Some of the plants which I find omitted from that work must, I conceive, have been observed by the talented author, but accidentally escaped record; or, indeed, I may, from the variety of synonyms, have overlooked them.

Hordeum pratense, Huds. In a field adjoining Eldad Chapel, Plymouth. It has been noticed here for several years. I gathered specimens last summer.

Molinia cærulea, Mœnch. Borders of Dartmoor (Tolckmoor), Mr. Bunker, July, 1850. Found before by Mr. C. Harper, somewhere near Shaugh Bridge.

Gastridium lendigerum, Gaud. Near Torpoint, Cornwall, Rev. W. S. Hore.

Luzula multiflora, Lej. Manadon Wood, near Plymouth. Specimens from this locality have been confirmed by Mr. T. Bentall, of Essex, who at the time they were submitted to his examination was in correspondence with Mr. Babington on the subject.

Polygonum Raii, Bab. Whitsand Bay, in the sand.

Melissa officinalis, L. Rame, Cornwall; doubtfully wild. This plant used to grow at Laira, near Plymouth, where it had the appearance of being indigenous. The South Devon Railway has obliterated this habitat.

Linaria supina, Desf. Catdown limestone-quarries, Plymouth. Very abundant this year on rubble cast out from the quarries; not confined to the ballast-heaps on which it was first noticed some years since. I collected 600 specimens the other day.

Linaria purpurea, Mill. On the walls of an estate called Trevollaul, near Saltash, Cornwall. It last year sprung up spontaneously on the garden-wall of a friend of mine, on the border of Millbrook creek, about three miles hence.

Orobanche amethystea, Thuil. Whitsand Bay, Cornwall. The discovery of this plant by the Rev. W. S. Hore has before been recorded in this magazine.

Datura Stramonium, L. A troublesome weed in a garden at Woodside, Plymouth, W. T. Diment. I gathered one specimen last year on the mud deposits from the new government works at Moricetown, near Devonport. It might have found its way there with manure.

Myosotis repens, Don. Not uncommon in this neighbourhood.

Myosotis cæspitosa, Schultz! Ditch in Chelson meadow, near Plymouth.

Pulmonaria officinalis, L. Manadon and Widly, near Plymouth. Questionably wild.

Polemonium cæruleum, L. This plant has grown freely for many years by the side of the Dartmoor railway, just before it enters upon the Laira embankment. Some cottages are at hand: *verbum sat.*

Sonchus asper, Hoffm. Occasionally met with about this neighbourhood.

Doronicum Pardalianches, L. Thicket at Widly, near Plymouth. It grows plentifully here, and seemingly wild; but in the same patch of ground are two or three other doubtful natives, which induces me to think that this plant has been introduced.

Pastinaca sativa, L. Catdown, Plymouth, and other places in the neighbourhood; not rare.

Callitriche verna, L. Common about Plymouth.

Callitriche pedunculata, De C. (*β. sessilis?*). Stagnant pools, Bickleigh Vale.

Medicago denticulata, Willd. Hoe, Plymouth.

Medicago sativa, L. Keyham, near Devonport. Tavistock Road, about two miles from Plymouth.

Hypericum linariifolium, Vahl. Morwell rocks, river Tamar.

Ononis antiquorum, L.? Wembury, Devon, Mr. F. H. Goulding.

Geranium pratense, L. Near Knackersknowle, Devon; but probably introduced.

Geranium pyrenaicum, L. Road-side between the third and fourth mile from Plymouth, on the Yealnyrton road, on slate. This plant was pointed out to me last summer. It appears truly wild.

Viola lactea, Sm. (Viola lancifolia of continental authors). Bickleigh Down, Devon, 1850. Messrs. C. C. Babington and H. C. Watson agree in attributing the above name to violets which I have sent them from this locality.

Reseda lutea, L. Ballast-heaps, Catdown quarries, Plymouth. As this plant is not met with elsewhere in this district, it perhaps scarcely deserves a place in this list, being undoubtedly an alien. It has, however, occupied its present habitat for the past six years under my own observation; how long before, I know not.

Koniga maritima, R. Br. On rocks near the sea, Plymouth and vicinity; frequent.

Diplotaxis muralis, De C. Catdown, Mutley. From the synonyms employed, this plant appears to be comprehended under Sinapis tenuifolia by the author of the 'Flora Devoniensis.' It is, however, a distinct plant.

Helleborus fœtidus, L. Manadon, near Plymouth.

Ranunculus Lenormandi, Sch. Frequent in this district.

Appended are additional habitats for three or four of the plants named in Mr. Hore's list. Those to which an asterisk is prefixed rank therein as Cornish plants. Their appearance in this county as well is therefore the more worthy of note.

**Briza minor*, L. Catdown, Plymouth, 1850.

Tragopogon porrifolius, L. Grass-plot in front of Devonshire Terrace, Plymouth.

**Trifolium ornithopodioides*, L. Cann quarries, Bickleigh Vale, Miss Edmonds, 1849. It was collected this year by Mr. F. H. Goulding.

**Reseda fruticulosa*, L., was found at Hooe, near Plymouth, in 1844, by Mr. G. Bartlett. I have not heard of its having been met with since.

ISAIAH W. N. KEYS.

Plymouth, August 7, 1850.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 1020).

Eleocharis palustris. In wet meadows, ditches, sides of pools, and in other marshy or boggy places; abundantly throughout the county. In the wet meadow within the walls of Quarr Abbey. Abundant in Brading marshes, near the sluice, and various other parts of the island.

Eleocharis uniglumis has, I understand, been found by Mr. Woods in Dorsetshire, near the Hants boundary. Of this species, real or assumed as such, I know nothing, but judging from the very slight distinctions laid down in the 'Manual' for its discrimination from E. palustris, anticipate its re-union with that common and variable plant at no distant day.

Eleocharis multicaulis. On turfy bogs, and wet places on moors, heaths and commons; probably not very unfrequent. In several parts of the Isle of Wight, as on the marshy skirts of Lake and Blackpan Commons (the north side, adjoining Sandown Level), in considerable plenty. Most abundantly on the boggy south-eastern declivity of Bleak Down, facing Roude. In a boggy pasture between Saynham and Dew's Place. Bog at Freshwater, Mr. Dawson Turner in Snooke's Fl. Vect. Bog at Blackpan, Dr. T. Bell Salter!

Eleocharis acicularis. On the shallow margins of pools, ditches and streams, and in damp, sandy spots on heaths, &c.; very rare? Not yet detected, to my knowledge, in the Isle of Wight. Along the muddy edges of Wall's Pond, Holy Water, on Wolmer Forest, abundantly, and still in pretty full flower, Aug. 29, 1849. Brockenhurst Bridge, 1843, Mr. Borrer (in litt.). I could not find it last summer (1849). Probably not uncommon in the county, as Mr. Borrer seems to hold it a frequent Sussex plant.

Scirpus maritimus. Abundant in salt-marsh pools and ditches, and on the muddy shores of tide rivers and inlets on every part of the coast, both of the Isle of Wight and mainland. Ditches behind Ryde Dover. In Brading, Sandown, Newtown and Freshwater marshes, &c., abundantly. Var. *β. monostachys;* spike solitary. Of this I found many specimens last year in a marsh ditch on Hayling Island, with the usual many or cluster-spiked form, but this suppression of all the spikes but one seems rather a casual state or condition than a true variety of the species.

Scirpus sylvaticus. In damp woods, thickets, and along the shady margins of brooks, drains, ditches, &c. In various parts of the Isle of Wight, but almost entirely confined to East Medina, and more particularly there to the valley of the East Yar. In drains or ditches on Sandown Level in several places, but sparingly, becoming more frequent higher up the stream. In a marshy spot on the north-east side of Youngwood's Copse, near Newchurch, in great plenty. Abundant in a willow bed called, I believe, Quobb, on the borders of Sandown Marshes, a little east of Alverston; also in a willow thicket betwixt Messley farm and Langbridge, and in the withy bed above the bridge, in plenty. Abundant in the Parsonage Lynch, Newchurch. Profusely at the northern extremity of Horringford withy bed, also by the stream close to Horringford Bridge, and along the ditches opposite Stickworth, very commonly. Still higher up the same stream (East Yar) it again becomes frequent along its course, and in the willow beds by its side, betwixt Bridge and Bagwich, as also betwixt Roude and Bridge Court (all by Godshill), near the latter in one or two spots, pretty plentifully. It grows likewise betwixt Merrygarden and Cheverton farms, by the stream on the right hand of the little bridge the road goes over, and most abundantly in a moist spot in the angle of a copse a little south-west of Combley farm, near Arreton, quite covering the ground. Sparingly in a wet meadow by Newport Mill (West Mill?). By St. John's turnpike, Ryde (Monckton Mead), Dr. T. Bell Salter. By the bridge at Alverston, in plenty, *Id. !!* Under the cliff at Shanklin, Mr. Dawson Turner in Snooke's Fl. Vect. Not uncommon, I conceive, in mainland Hants, although as yet I have only the undermentioned stations to give for this beautiful and conspicuous plant. Plentifully along the streams a little to the south-east of Petersfield, in several places, as well as by the mill at Sheet, near that town. Frequent apparently about Selborne. In one or two wet hollows in the bends of the stream betwixt Priory and Oakhanger, plentifully. I found it most profusely in the Combe Pond, betwixt Selborne and Priory farm, a part of which was exclusively filled with it in full flower, June 17, 1850; but the pond is in progress of draining, and the species may not continue to grow there much longer. Dr. Salter finds it by the bridge at Oakhanger, and in a swamp at the foot of Weekhill hanger. I noticed it, in 1848, in several places about Botley and Bishop's Waltham. S. carinatus and S. triqueter, found in Sussex, may one or both be fairly looked for in this county; but I fear the former is hardly distinct from S. lacustris.

Scirpus lacustris. In ponds, ditches, rivers, slow streams, and marshy meadows; common in most parts of mainland Hants, but never found by me in the Isle of Wight, which possesses only the next species or variety. In great quantity in a large pond at the back of Langston, near Havant. Very abundantly in the river Itchen, betwixt Winton and King's Worthy. In the Lymington river, a little above Hayward Mill, Boldre, &c. Titchfield river, Mr. W. L. Notcutt.

Scirpus Tabernæmontani (S. glaucus, *Sm.*) In brackish or salt marshes, ditches and pools, but sometimes in those of fresh water; only found, I think, along the sea board, or at very moderate distances from the coast. Abundant in several parts of the Isle of Wight. Marsh ditches behind Ryde Dover, pretty plentifully. Ditches near Gurnet Bay, where the plant is much smaller than at Ryde. Brading marshes, in plenty. Common in the ditches at Easton, Freshwater Gate, and abundant in marsh-meadow ditches, between Yarmouth and Thorley. I have gathered it in little inland fresh pools betwixt Ningwood and Hampstead, and on the mainland, where it is extremely common along the coast, as in Hayling Island, Stokes Bay, &c. With all the apparent constancy which distinguishes this from the last, in the glumes, number of styles, and smaller size, I find great difficulty in believing it to be anything more than a maritime form of S. lacustris. It occurs, it is true, in the Flora of Halle in Saxony, but that district abounds in some parts with salt, and yields salt-marsh plants, such as Salicornia, Scirpus maritimus, &c. I have certainly seen transition states from one to the other, in particular the glaucescence of the culms varies greatly, and is sometimes scarcely more obvious in our present subject than is S. lacustris, which itself occasionally assumes a conspicuously blue or grayish colour.

Scirpus cæspitosus. On barren turfy heaths and moors; not yet observed in the Isle of Wight, but plentiful enough in mainland Hants, over all which part of the county it is probably dispersed. Abundant on many parts of Titchfield Common. In the New Forest, near Rufus's Stone, betwixt it and Castle Malwood, and doubtless frequent in other parts of the forest. Abundant on the moors by Christchurch, and profusely on heaths and moors near Ringwood, in the vast fir plantations between the Avon and the Stour, at St. Leonards, &c. By Cæsar's Camp, near Farnborough. On heaths in the Holt Forest; Mr. W. W. Reeves (in litt.). At Fleet Pond, Mr. H. Bull (in litt.). The apparent absence of this plant from a district by no means deficient in heath and marshy ground is a remarkable feature in the Isle of Wight flora; and I am still inclined to the belief that it has been overlooked in the island, not really wanting there. This species flowers with us from the very commencement of May, or even at the close of April; the books give June, &c.

Scirpus pauciflorus. On wet or boggy heaths; apparently rare in the Isle of Wight and county generally. Plentiful on the upper part of the heath at Colwell, Freshwater, towards Weston, July 6, 1840. Bog on the right hand below the road about three miles from Lymington towards Brockenhurst, June, 1849. Nutshaling (now called Nursling), Townhill and Netley Commons; Mr. Winch, in New Bot. Guide.

Scirpus parvulus. In damp places, extremely rare. Discovered about ten or twelve years ago, by the Rev. G. E. Smith, on a mud flat near the baths at Lymington, but now seemingly extinct from alterations. I have several times instituted a most careful search, as has also Mr. Borrer, on the spot indicated to me by the discoverer, which is on the gravelly flat betwixt the bath house and the river, but I fancy the exact place where the plant grew is now occupied by a rectangular reservoir for the supply of the baths, and not, as has been stated, by a swimming bath, unless I have quite mistaken the directions given me, as that establishment, though contiguous, is separated from the outer baths by an embankment and high palings, and could not, I am confident, have been the station for the Scirpus, seeing that it does not accord with the diagram of the locality furnished me by Mr. Smith himself. There is still a considerable surface of undisturbed salt flats, close to the bath buildings, and as these from their inconvenient distance from the town and participation in the general decay of the borough (no longer the fashionable resort of the county families for sea bathing it once was), hardly pay the cost of keeping up, it is not probable that any further improvements or additions to the baths will be made to trench on the remaining ground, still likely to afford this rare little species on reiterated and persevering search. Some logs of timber lay on the spot where the Scirpus grew, and timber is still deposited on the same flat ground by the baths, which might naturally create a suspicion of the plant's having been conveyed by the latter from abroad; but what I have always seen lying there looks more like oak timber from the neighbouring forest, judging by its small scantling and being almost in the rough, merely barked and slightly trimmed, not squared or sided, as it would be, I apprehend, coming from a foreign port.* I have set the bath-keeper, an intelligent and obliging person, to look out for the Scirpus, but do not hope for much assistance in its re-discovery from one ignorant of botany, and therefore wanting both in zeal and experience for the detection of a plant scarcely exceeding an inch in height. I have seen specimens in the herbariums of Mr. Smith and Mr. Borrer, and others, deposited by my reverend and esteemed friend, in that of the Chichester Philosophical Institution, but possess none of my own. I cannot doubt but that S. parvulus is truly indigenous in this, its only recorded British station, since it inhabits the south and middle of Europe, as far north as Denmark (by the Elbe in Holstein), but would seem to be extremely local and uncommon on the continent as with us. There is an excellent figure of it in 'Flora Danica,' vol. xiii. t. 2161.

Scirpus fluitans. In ditches, drains, pools, and watery pits, either floating in the water or constituting a dense and spongy but treacherous turf around the shallow margins of the two latter. In several parts of the Isle of Wight. Marsh ditches at the upper or north-west end of Blackpan Common, in great plenty, and in watery gravel pits on Bordwood Heath. In clay pits on heathy ground near the western arm of the Newtown river. All along the little ditch or drain bounding the fir plantation by Winford farm, rooting in soft mud. I have at present only the undermentioned mainland station to give for this Scirpus, which I cannot suppose to be really rare in the county, although it happens not to have fallen under my notice since I began to investigate that, the more extensive portion of Hampshire. South end of Miller's Pond,† Mr. W. L. Notcutt, in a list of the Rarer Plants near Southampton, in Phytol. i. p. 328.‡

Scirpus setaceus. In damp sandy or gravelly places, on wet ditch banks, in low meadows, drains, and turfy bogs, &c., but by no means a frequent plant, at least in the Isle of Wight, where, and along the coast opposite, its place is chiefly supplied by the next species. In a ditch near Ninham farm, by Ryde. Plentiful about Lake Common and in various parts of Sandown Level. By Lashmere Pool, at the foot of Bleak Down, but perhaps extinct there by the late draining. In a boggy meadow a little above Newbridge towards Calbourne Mill. Undercliff and east of Shanklin Chine; Mr. Wm. Wilson Saunders. Meadows by Steephill, Mr. Fred. Townsend. Not likely to be rare in mainland Hants, but I have only the following localities to cite for it at present. Moist border of a field on the skirts of Durley Wood, near Bishop's Waltham, 1849. By a pool betwixt Cracknore Hard and Marchwood, near Southton, July, 1850. Rownam, near Southton; Mr. James Hussey!

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* The peculation so long carried on with impunity in the New Forest, through the supineness and maladministration of the forest officers, and recently brought before the public in judicial and parliamentary inquiries, must materially have helped to stock the builders' and shipwrights' yards of West Hants, with oak timber at an easy rate.

† Marked Weston Pond in the Ordnance Map.

‡ Since this was written I have found S. fluitans near Christchurch, in the New Forest, and elsewhere on the mainland; no uncommon species across the water.

Scirpus Savii. Far from uncommon in the Isle of Wight and along the opposite coasts of the county, in similar places with S. setaceus, in damp springy spots by rills, in woods and on heaths, also on wet slipped land by the sea shore, &c., never at any considerable distance from the latter, or in the interior of the county. On the farthest part of St. Helen's Green. Most profusely on the banks of slipped land under the Cliff in Sandown Bay, within half a mile of Shanklin Chine on its north side, 1840 and 1844 (See Phytol. ii. p. 516); some of the densely cespitose, depressed and radiating spreading tufts measured as much as fifteen inches across. Wet spots on Briddlesford Heath, and in a marshy meadow not far from Landguard farm, by Shanklin, in one spot plentifully. Colwell Heath, Freshwater. I find it in various places betwixt Niton and Blackgang, especially along the little stream that descends over the dislocated land to the sea, in great abundance, as well as in most plashy spots on that part of the coast. These are the principal stations known to me in the Isle of Wight for this little Scirpus, but it may be found in most other parts of it occasionally, by looking in the proper situations, where it is apt to be mistaken by those unacquainted with it for S. setaceus. Mr. Borrer, one of the first I believe to recognize it in the south-east of England in modern times, may be held its discoverer again in our own day in the Isle of Wight;* he having noticed it many years ago at Knowle near Niton. Perhaps not less frequent along the opposite mainland coast, although this rather common Hampshire plant would seem to fail reaching Sussex to the eastward. On wet sand-banks near Christchurch (Hengisbury) Head, Oct., 1849. On wet gravel in a field a little way from the bridge at Lymington, adjoining a brickyard, in considerable plenty, Sept., 1849. Near Boldre, on the way to Royden farm, with Centunculus minimus. In the Isle of Wight I have hitherto remarked only the variety with a solitary spike (var. β monastachys, *Hooker*), but in the specimens collected at Lymington many of the stems bore two spikes, very rarely three, the second spike usually somewhat lateral, either quite sessile or on a peduncle more or less elongated, sometimes even greatly exceeding the spike itself in length. In many instances the stems were forked at the summit, each fork bearing a solitary spike, neither of which was more evidently terminal than its fellow; and often the terminal as well as the lateral spikes was elevated on a longish stalk or peduncle, all these peduncles being distinguished from mere prolongations of the stem by strongly winged, deeply projecting ridges, giving the appearance of being spirally twisted. In these specimens the bracts were very short and minute, and in a great proportion of the spikes obsolete.

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* I have shown in a former part of this journal (Phytol. ii. p. 516) that S. Savii was distinguished specifically from S. setaceus, more than two centuries back.

Scirpus Holoschœnus. In damp sandy places on or near the seashore; very rare, and perhaps extinct in Hants. "On the sea-shore in this county," Robson (Bot. Guide). Found in Hampshire, by Sherard (Moris. Hist. Plant iii. p. 232), and in this county, according to Petiver, also (Ray's Syn.) Not detected, so far as I am aware, by any botanist of more recent times, but as no station was given by the authorities quoted above, there is every possibility that this rare plant still grows in some little explored corner of our extensive coast line.

Blysmus compressus. In marshy or boggy pastures, on turf moors and grassy sides of rivers, ponds, &c., rare? Fisher's Pond near Bishop's Stoke; Mrs. Delmè Radcliffe !!! The first notice I had of this as a Hampshire species was from Mr. J. Hussey, in whose herbarium at Salisbury I saw specimens in May last, received by him from Mrs. R., who kindly gave me directions to the locality. I could not find it in the precise spot indicated to me at the south-west end of the pond, but gathered it in tolerable plenty on a space of moderate extent close to the water's edge, about the centre of the western side of the pond, July 6, 1850. In very great plenty in some moory meadows by the river side, betwixt Bishop's Stoke and Otterbourne, a little to the eastward of the South Western Railway, and to the northward of Highbridge, July 10, 1850. It occurs unquestionably elsewhere in the county, and may be reasonably expected in the Isle of Wight. In Baxter's 'Flowering Plants of Britain,' it is stated, on the authority of Mr. Bicheno, to be plentiful about Newbury in Berks, which town being only two miles from the Hampshire boundary, the

Blysmus should be looked for along that part of the frontier line. The more exclusively northern B. rufus may be found extending its equatorial limits as far as this and other southern English counties. Our species has some resemblance to Carex intermedia, and was at one time even referred to that genus by Linneus, and called by him C. uliginosa, manifestly through hasty examination or careless inattention to the great differences in the structure which distinguish these genera.

Eriophorum vaginatum. On turfy boggy heaths, and wet barren moors; apparently quite uncommon in Hants, although doubtless other stations besides those subjoined exist in the county. On a bare stony bank, under Cæsar's Camp, near Farnham, just above a spring, along with Convallaria majalis, 1844, Mr. W. W. Reeves. Sought unsuccessfully there with the discoverer, April 30, 1850, both plants having seemingly become extinct. On Christchurch or Hengistbury Head, and at Sandy Balls, near Breamore, Mr. J. Hussey! In Miss Lovell's herbarium is a specimen of an Eriophorum, with a solitary spike, picked by herself, Sept. 23, 1847, under the shore going westward from Blackgang towards Walpen Chine in this island, but the plant wants the inflated leafless upper sheath of the present species, and is, probably, only an accidental single-spiked form of the following.

Eriophorum polystachyon. In wet and boggy places, on barren moors and heaths, also on slipped land along the sea coast. Var. α. Fruit obovato-elliptical, E. polystachyon, *Leight.*, Fl. of Shrops. p. 31, and fig. in pl. 2. Most abundantly on bogs on Rookley Moors, about the Wilderness, &c. Abundant in boggy ground on the south-eastern face of Bleak Down. Var. β. Fruit elliptical-acuminate; E. angustifolium, *Leight.* (ut supra), with the former about the Wilderness, in plenty. These two varieties are scarcely distinguishable from each other by any well-marked or constant character, nor do I find the hairs of the second, in this island, any longer than those of the first variety. One or other grows on the wet, slipped banks of clay, in Colwell and Totland Bays, near Blackgang, and elsewhere, occasionally along the south-western shores of the island. Exceedingly frequent and abundant in mainland Hants, on the extensive moorlands of the New Forest, Christchurch and Ringwood Hundreds, and, indeed, over most parts of the county.

Eriophorum latifolium. In similar places with the two preceding, but apparently much rarer than E. polystachyon. At present I have only the undermentioned stations to record for it in Hants, but it is highly probable that it has been passed over by me, at least on the mainland, for the last species. Plentiful on the upper and boggy part of Colwell Heath, Freshwater, June, 1841. Well distinguished by the peduncles of the flower-spikes, that are scabrous in various degrees, with minute, subappressed bristles. E. gracile, *Roth* (not of Smith), found in Surrey, should be looked for in this county.

In the following enumeration of the Hampshire Carices, the list will be found extremely imperfect as regards the mainland division of the county, for which stations are still wanting to show the distribution even of the commoner species, whilst several additional ones remain doubtless to be discovered. My comparatively recent and imperfect practical acquaintance with that part of Hants; its great extent compared with the Isle of Wight; the restriction of the flowering and fruiting of the sedges to the earlier months of summer,* and the difficulty of inducing the generality of local observers to pay attention to these and the rest of the Glumaceæ, in their respective districts, or even to transmit specimens fresh or dried for examination and recording; all these have proved obstacles to ascertaining with any approach to precision the number, frequency and distribution of the Cyperaceæ and their allies over the greater portion of the county, and have compelled me to depend mainly on my own exertions for filling up so important a gap in the botany of the district. As far, however, as regards the Isle of Wight, the catalogue of indigenous species belonging to these interesting and beautiful orders, will, I flatter myself, be found tolerably complete, they having engaged much of my attention for several years past. The rich sample yielded by this little sea-girt spot, gives earnest of what may be expected from diligent exploration of a field of four or five times its area, hitherto so superficially examined, and that chiefly by strangers and temporary visitors, as has been mainland Hants. I shall consider myself particularly under obligations to such botanical friends and correspondents as will favour me with specimens and notices of Hampshire Gramina and Cyperaceæ, the latter more especially, as less easy of detection than the grasses, after the first half of summer, when the fruit has fallen away. I am already indebted to Mr. Borrer for information and examples illustrative of both these tribes, in the district where such help is most needed; and Mr. Watson has communicated to me notices of one or two grasses new to the county, leaving me to regret the want of such able and zealous assistants to lighten my labours by more than their occasional services.

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* It is proper to remark in this place, that in the Isle of Wight, and unquestionably in every part of the county besides, by far the greater number of Carices indigenous thereto, flower in May, and not a few towards the close of April, only partially continuing to blossom on through the first week or ten days of June, excepting the undermentioned, which belong mostly to that month: C. ovalis, intermedia, extensa, vulpina, Pseudo-cyperus, with perhaps one or two others. A knowledge of this fact will save the botanist in the island both trouble and disappointment, as, if guided by the time given in our ordinary hand-books, he will find those species in fruit, perhaps over-ripe and ready to fall away, which he was led to expect in flower, or in that intermediate state of flower and fruit which is the best possible for examination and preservation in the herbarium.

Carex dioica, although as yet a very dubious inhabitant of Hants, can scarcely be supposed a stranger to the bogs and marshes of this county. It was pointed out to me growing sparingly in one spot, June 17, 1844, by Fred. Townsend, Esq., in a moist meadow immediately behind the Wilderness, at Rookley. I find the station entered as above in my MS., with a doubt expressed, but I think I felt such doubt at the time of seeing the plant, and having unluckily preserved no specimens, I held it safest to suppose an error, and that C. pulicaris was in all likelihood mistaken for C. dioica in this instance.

Carex pulicaris. In bogs and marshy places, on wet moors, heaths and commons; not unfrequent in the Isle of Wight, and probably throughout the county. Heath near Smallgains farm, by Newport, frequent. At Freshwater Gate, and abundant on the upper part of Colwell Heath. Wet places on Lake Common, and on Bleak Down. Marshy, heathy ground at the back of the great fir plantation in Long Lane, near Arreton. Bog at Blackpan, Dr. T. Bell Salter! Bog just below Cockleton farm, Miss G. E. Kilderbee. Titchfield Common, Mr. W. L. Notcutt!!! Titchborne Common, Mr. W. Pamplin. I have since met with it in other parts of mainland Hants, where it is certainly not uncommon.

[*Carex incurva.*] In looking over the herbarium of the late Mrs. Robinson, of Fareham, shortly after that lady's decease a year or two ago, the Rev. G. E. Smith found a couple if not more of packets of this northern sedge, each paper containing numerous specimens, and labelled in Mrs. R's. hand-writing, "Bog on Titchfield Common." That a Carex hitherto found only in the northernmost parts of Britain, on the continent,* and restricted to the dry sandy shores of the ocean, should grow on a southern and comparatively inland morass, is a deviation from its usual habitudes so improbable, that with one of these specimens before me, for which I am indebted to

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* It is stated, however, to grow on the Alps, as the C. juncifolia of Allioni.

Mr. Smith, I do not feel justified in admitting the species into the Hampshire flora (except between brackets), without more satisfactory evidence than the fact above stated supplies. Mrs. Robinson was most assiduous in collecting the plants of her neighbourhood, and I believe usually careful and exact in noting down their localities; but her collection embraced plants from other quarters of the kingdom, and it is very possible that in this case some transposition of names might have been committed in labelling the series of specimens, or the latter may have been themselves shifted into papers not intended for them, and inscribed with the locality for some other plant.* I spent some hours in June, 1849, searching for this Carex on Titchfield Common, without seeing a trace of it; but I might after all have missed the spot, for the common is of immense extent, and would require several days to explore completely. C. incurva has not, I believe, been found further south in Britain than Forfarshire; yet would a leap of some 400 miles, from the sands of Barrie to Titchfield Common, be not a wholly unprecedented, although sufficiently startling instance of anomalous distribution amongst plants; neither would its appearance in a somewhat inland and even boggy station be cause for much astonishment, seeing that C. arenaria, usually a species of dry, sandy sea-shores, occasionally occurs at considerable distances from the coast, in the like sandy and even (as we shall show in speaking of that plant) wet or boggy spots. But besides that the soil of Titchfield Common is not of a sandy character, the boggy nature of the station here assigned to C. incurva does seem foreign to that plant, as hitherto observed, and consequently affords very strong grounds for disbelieving in the existence of this Carex in Hampshire. Still the matter deserves further inquiry, and the attention of botanists visiting Titchfield is hereby respectfully directed to the point.

Carex divisa. In meadows, pastures, and grassy places, on or near the coast, and in salt marshes; very frequent both in the Isle of Wight, and along the opposite shores of Hants. Frequent about Ryde, in the marshy meadows behind the Dover, in a part of which it constitutes a large proportion of the coarse herbage. In the meadow behind Quarr Abbey, dividing Quarr Copse from Shore Copse. Abundantly in the meadows betwixt Springfield and Nettleston

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* I think I understood from Mr. Smith, that the stations only, and not the name, was written on the packets, as if the species had been unknown to Mrs. R. I am not sure if this be fact, but if so, it lends much weight to the supposed discovery of C. incurva, at Titchfield, coupled with the circumstance of there having been more than one paper found labelled as above.

Point. Plentiful and very fine at the mouth of the Wootton river. Common about Cowes, as in Gurnet Bay, and abundantly in all the marshy meadows at the back of it. By creeks of the Medina, above West Cowes, frequent. Abundant in a meadow betwixt Yarmouth and Thorley, on the left hand of the small bridge, also along the shore a little east of Yarmouth. At Bembridge, by the road side opposite the blacksmith's shop at Hillway, Dr. T. Bell Salter. Very common, I think, on the coast of the mainland. Frequent near Alverstoke, and if I recollect rightly in Hayling Island. Meadows along the shore below Lymington, where, as in the Isle of Wight, it forms the greater part of the herbage. Salt marshes at Exbury. Marshes near Hill Head, in abundance, Mr. W. L. Notcutt! A troublesome plant in our natural maritime meadows and pastures, as being apt to mingle in too large a proportion with the hay crop, that here and there consists of little else but this sedge, which is commonly in flower with us by the middle of April. Schkuhr's figure of C. divisa is a professed copy of Goodenough's, and being coloured from description only is very unlike nature.

Carex intermedia. In wet meadows, by the sides of ditches, pools, rivers, &c., not rare. Frequent in the marsh at Easton, Freshwater Gate.* In a wet meadow at the upper end of Brading Harbour, plentifully. Boggy, swampy marshes at Andover. On Stoke Common, and in the Nythe pastures by the great pond at Alresford, plentiful in both places. Winnal meadows, by Winchester, Chilbolton Common. Bog at Cockleton, near Cowes, Miss G. E. Kilderbee! and many other places. Var. β. Spikes very compact, spikelets for the most part pistillate throughout with darker glumes. Wet meadow between Brixton and Muggleton, Isle of Wight, April 30, 1846. A rather remarkable form, differing from the ordinary state in the closer, less distinctly lobed and elongated spikes, which in nearly all the specimens I collected appear to consist entirely of pistillate florets throughout, one example only exhibiting staminate florets towards the summit of the spike, those below and at the apex being pistillate as usual. This variety has broader leaves than in my examples from other places, and the stems are somewhat arcuate. There cannot be the smallest doubt of its being a mere variety of C. intermedia, nor could Dr. Boott, to whom I showed it, refer it to any other species. The fruit of C. intermedia seems to be not often perfected, I find it so, however, at Easton, but do not perceive in the well-ripened perigyne any sign of that widening at the base of the beak mentioned by Babington and figured by Leighton (Fl. of Shrops.), and which I therefore take to be an inconstant character. Dr. Boott thinks that Hudson's name of disticha should be restored to this species on the score of priority.* Nut greenish yellow, shining, punctate, and somewhat wrinkled lengthways, ovoid-elliptical, very flatly trigonate, the lateral angles obtuse, with a narrow rib-like margin, tipped with a short cylindrical process, on which the style is jointed.

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* I much fear that all the interesting plants at Easton are in a fair way of being speedily exterminated, through the bog-reclaiming zeal of Mr. John Squire, of Yarmouth, and that by this time many of the station [illegible] the earlier part of these notes have become matter of history only. I ha [illegible] some months, but have been complacently in [illegible] made there this s [illegible] and which Tex [illegible] tions for the bota [illegible]

Carex arenaria. Common on sandy sea-shores of the Isle of Wight, and mainland Hants; very rare in sandy places at a distance from the coast. Plentiful on Ryde Dover. Shore at Bembridge. Abundant on the debris at the foot of the cliffs in Sandown Bay, and on the detritus of the sand-cliffs, between Niton and Blackgang. Shores of Portsea and Hayling Islands, Christchurch Head, &c. About the sand-pits on the south-west side of Petersfield, close to the town, in plenty, August, 1849. In considerable abundance a few miles from the sea, in damp, blackish, sandy turf, on a moor near the Avon, a little above Sopley, called, I was told, Dudmore (part of Hurne Common ?), growing with Ericæ, Calluna, and other moorland plants; June 30, 1850. Var. β. Stem and spikes upright, root fibrous, Withering's Arr., 3rd edit. ii. p. 90, t. 20, C. Witheringii, Gray's Nat. Arr. Sandy shore on the north-east side of the Isle of Wight, Withering!!! On Ryde Dover. A very slight form, or rather state, of C. arenaria, with a less creeping rhizome than usual, but differing in no other respect, so far as I can see. The Petersfield and Hurne stations are among the few inland localities I know for this species in England. In 1838, I remarked it very abundant in the loose, sandy soil at Mildenhall, in Suffolk. The long, creeping rhizome, when chewed or bruised, imparts a certain weak spicy taste and smell, like camphor and ginger combined, and has been used in Germany as a substitute for Sarsaparilla.

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* Hudson's name, although not unexceptionable, is preferable to that of intermedia, subsequently imposed by Goodenough, because, as he tells us (Trans. of Linn. Soc. ii. p. 155), of "having generally the intermediate spiculæ almost entirely male" (staminate). But the adjective intermedia is mostly employed to signify a transition species, or one intermediate between two others, its near allies in character; as used, therefore, by the Bishop of Carlisle, the question at once suggests itself, betwixt what two species is our Carex the connecting link? The spikelets of this sedge, if not strictly speaking distichous, present sufficiently the appearance of that mode of arrangement to render Hudson's epithet allowable.

Carex vulpina. In boggy or marshy places, sides of rivers, ditches, &c. (even salt or brackish), also in wet woods and hedges; one of the commonest species of the genus in Hants, abounding over most parts of the Isle of Wight and mainland pretty equally. About Quarr Abbey and elsewhere near Ryde, &c., frequent. Rachis of the spike very suddenly contracted at the top of the culm, which last, in damp thickets, is often four or five feet long, and reclining or even trailing. Very closely allied to our plant is C. stipata, *Muhlenb.*, C. vulpinoidea, *Mx.*, which I remarked to be frequent in North America, but abundantly distinguished from C. vulpina, by its much softer stems, so deeply and acutely triquetrous as scarcely to present any central core or cavity, at the juncture of the three flat thin wings or angles; in its perigynes, which are more convex at the back, very abrupt and flat at the base, which is usually depressed in the centre, and on a slender stipes; in the much longer beak, and, lastly, according to Schkuhr, in having the sheaths of the lower leaves transversely striated. The seed (nut) in both species is very similar. The ripe perigynes of C. vulpina are usually deep rusty red, but I find them in some parts of the county of a dark brown, nearly black colour.

Carex muricata. In moist gravelly pastures, on banks and under hedges, by road sides, &c. In several parts of the Isle of Wight, but not common. Quarr Copse, May, 1840. By the road-side close to Gurnet farm, by Gurnet Bay, in plenty, June, 1838. In the plantations under the cliff betwixt Shanklin and Cook's Castle, 1840. Along the top of the Parsonage Lynch, Newchurch, 1841. Abundant along the road-side between Bowbridge and Godshill, June, 1843. Betwixt Alverston and the Grove, by the road-side. Possibly not uncommon on mainland Hants, but at present I have only the following station to record. Alverstoke, June, 1849. Ripe perigynes of the closely approximated spikelets more widely spreading, and the edges of the beak much rougher than in the following species. Similar as are this and the next species, there appear to be sufficient grounds for holding them distinct. Dr. Boott, than whom no one has studied the Carices more assiduously and profoundly, writes to me thus on the subject: "I think the habit of C. divulsa is different from C. muricata, and it is found in countries in which C. muricata is not a native."

Carex divulsa. In damp hedge bottoms, on banks, in woods, and moist shady places. Much more frequent than C. muricata in the Isle of Wight, and, in fact, no uncommon species in the county at large. In many places about Ryde, close to the town, as in hedges about Little Barground (formerly at least, now perhaps destroyed by alterations), in Quarr Copse, by the road-side betwixt Oakfield and St. John's, and elsewhere. Plentiful with C. remota, under hedges in the lane that crosses the Newport road, on Binstead Hill, leading to Ninham, Firestone Copse, &c., and on the road out of Ryde towards Upton, and Haven Street, near the direction post. Frequent on hedge-banks about Newchurch, as by the road-side to Mersley, &c. Near Osborne or New Barn farm, East Cowes. In plenty on a low bank facing the lodge gate at Westover, and by the road-side betwixt Newbridge and Colbourne, &c., as well as in various other parts of the island. About Titchfield, in hedges, between Titchfield and Fareham. Strathfieldsaye Park and elsewhere, remarked by myself, not uncommonly. Titchfield road, Puxol Lane (near Fareham), Mr. W. L. Notcutt. Assuredly very close to C. muricata in character, yet I do not remember ever having found any difficulty in distinguishing one from the other. The ripe perigynes of the more remote spikelets are only moderately spreading, and are quite glabrous and smooth, excepting a few small distant serratures towards the apex of the gradually tapered beak. The nut I find exactly similar in both plants. C. teretiuscula most likely inhabits the county, but it is either itself an obscure species, too nearly resembling C. paniculata, or I do not sufficiently know the plant to be able to distinguish it at sight; all the specimens I have at first taken for it have proved on further examination to be only the variety of C. paniculata descried under that species. My dried authentic examples from other parts of England of C. teretiuscula do not help me to discriminate these two from each other.

Carex paniculata. In wet boggy woods, thickets, willow-beds and in watery meadows; extremely frequent in the Isle of Wight, and, as far as my observation has yet extended, throughout the county. Plentiful in a wood a little way out of Ryde, near the junction of the roads to Ashey and Haven Street. Abundant in all the wet thickets about Newchurch and Alverston, in Apse Heath and Horringford withy beds, on the Wilderness, and Rookley Moors, near Newport, and in most swampy thickets and copses in the island. Var. β. Smaller, in scattered simple tufts; panicle close with short branches. Bog below the bank betwixt Hartsash and Knighton farm, a little above Knighton Lower Mill, in plenty, May 6, 1845. On boggy meadow ground near the Wilderness, and I think not uncommon. This form, which may be the one slightly alluded to in the second edition of 'Babington's Manual,' under the present species, I at first took for C. teretiuscula, but could not make it quite agree with the original description of that species by Goodenough, in the 'Linnean Transactions.' C. teretiuscula has indeed always been to myself an obscure and ill-defined plant, possibly from never having seen it growing or in a living state, but I cannot avoid remarking here that in description, the dried specimens, and plates, it bears a suspiciously near resemblance to C. paniculata. The description in the Manual of C. teretiuscula, paradoxa, and paniculata, are not such as to increase confidence in their distinctness as species, or to enable the tyro, or those not practically acquainted with the three, to discriminate between them with certainty. In dealing with these plants in the normal state of each, some difficulty, I apprehend, will be found in obtaining characters of sufficient fixity and importance to satisfy the doubts of a great many, doubts naturally much strengthened by learning the existence of such an awkward-sounding "intermediate," betwixt C. teretiuscula and paradoxa, as the C. Pseudo-paradoxa of Gibson (C. *Ehrhartiana* of Hoppe, and C. teretiuscula β. Ehrhartiana of second edition of the Manual). My own variety β., mentioned above, is very probably identical with this last, but if so, is, I am fully persuaded, a mere form of C. paniculata, of smaller, more contracted growth, perhaps even a young state of the whole plant, which at a period further advanced would become stouter, taller, and more cespitose, and with a more expanded panicle. Sir Wm. Hooker, who is justly sceptical of the clams of C. teretiuscula as a species, moreover, observes, "The C. paradoxa of continental writers appears to be almost intermediate between them" (teretiuscula and paniculata), and whoever will be at the trouble of comparing the descriptions of these three plants and dried specimens of the same, must, I imagine, feel some scruple in keeping them distinct. Dr. Boott, the best authority, perhaps, at the present day for the Carices, as having made this interesting genus an object of peculiar study, and possessing, probably, the most complete collection of the species in existence, speaks of the line on the convex side of the perigyne, in C. teretiuscula and paniculata, as only "sometimes winged" (Hook. Brit. Fl. 5th. edit. p. 425.) In the specimens of ripe fruit of C. paniculata, in the carpological collection I have been for some year forming of British plants, I find no such winged ridge on the back or convex surface of the perigyne, but at most an obtuse, often evanescent ridge, along the centre of the gibbous (not triangular) outer side, which fails to reach the beak, and is, in fact, only the central nerve or rib, not more distinct or prominent than the lateral ones;* whilst on the outer side of the beak, I perceive only an occasional thickening, now and then forming a slight ridge, hardly to be called a wing, and as often or oftener obsolete as present. Again, I find the (fully ripe) perigynes by no means "obscurely many-nerved," but, on the contrary, that the nerves are for the most part very distinct, prominent, and rib-like on both sides at the base, vanishing at different distances in their course upwards towards the beak, into which, or nearly so, one or more of the central nerves very commonly extends. The densely tufted and matted fibres of the roots form, with the soil which they bind into a firm mass with their own substance, large conical mounds, often several feet in height, used, it is said, in some English counties for hassocks, and serving as stepping-stones, enable the botanist to traverse the boggy thickets with dry feet. The long tough culms are employed in this island as a cheap though inferior substitute for straw, in thatching ricks, &c., occasionally.

W. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight.

(To be continued).

Errata in previous Numbers.

Page 836, *note at bottom, for* Holtzartin *read* Holtzarten

„ 845, *fourth line from bottom, for* Stapler's *read* Stopler's.

„ 853, *third line from bottom, for* lesianthus *read* lasianthus.

„ 906, *second line from bottom, for* guide books, flourishes *read* guide-book flourishes.

„ 908, *line twenty-two from top, for* Parholt *read* Parnholt.

„ 908, *line twenty-eight from top, for* Trondiem *read* Trondyem.

„ 911, *line five from top, for* Akenden Wood *read* Akenden Wood.

„ 913, *line four from top, for* Serapis *read* Serapias.

„ 917, *note, line three from bottom, for* Erithronium *read* Erythronium.

„ 955, *line twenty-three from top, for* Haverstreet *read* Havenstreet.

„ 955, *line twenty-eight from top, for* Gadshill *read* Godshill.

„ 1003, *line fourteen from bottom, after* (in litt.) *add* !!!

„ 1004, *line three from top, for* Ilford *read* Iford.

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* Repeated observation has convinced me that too much stress should not be laid on the number, direction, or distinctness of the nerves or ribs on the perigynes of the

Notice of '*The Tourist's Flora:*' *A Descriptive Catalogue of the Flowering Plants and Ferns of the British Islands, France, Germany, Switzerland, Italy, and the Italian Islands.* By JOSEPH WOODS, F.L.S., &c.

THIS book has been a long time spoken of; and we accordingly presume that it has been long also in course of preparation for the press. It is, moreover, the work of a botanist of many years' experience in that somewhat narrow view of botany which regards plants merely as numerous single objects, to be distinguished from each other by names and descriptions of external form. Such a work, by an author so qualified, we should expect to find good and useful after its kind; and the expectation is not disappointed by 'The Tourist's Flora.' The following passage, from the Introduction, will let the Author himself explain the scope and aim of his volume :—

"The intention of the present work is to enable the lover of botany to determine the names of any wild plants he may meet with, when journeying in the British Islands, France, Germany, Switzerland, and Italy. I have chosen these limits as those of the countries most frequented by English tourists, and with the botany of which I was in some degree personally acquainted. To have extended them further, would have made my book more bulky, and, I am afraid, more imper-

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various species of Carex; and, further, that descriptions of the fruit should be drawn up from *perfectly ripened* specimens alone. It is not before complete maturity that these nerves are to be seen in full distinctness and relief; till then, they often continue wholly or partially obsolete or obscurely manifest, neither can the true form of the entire perigyne be so well judged of and described in a green or half-ripe state as afterwards, when no further change of shape takes place, by the dissipation of its fluid constituents." The nerves on the anterior and posterior faces of this organ are left indefinite by nature, nor are their direction and length much more rigidly appointed them; it becomes, therefore, a matter of importance to describe this essential part of the plant in its most inalterable condition, for the avoiding as much as possible those errors which lead to want of accordance in the descriptions of different writers. My own practice has been to *collect* the perigynes of all our sedges when *dead ripe*, and to draw up the descriptions of them and the included seed or nut in that state only; the preserved specimens undergo no farther change by keeping, and remain from thenceforth in a condition fitting them for testing the accuracy of written descriptions in any case of doubt or dispute. If the perigynes be gathered before perfect ripeness, there is a risk of their becoming in some degree distorted by shrinking, and, perhaps, giving false or accidental characters, besides which, they do not in that case acquire their proper colour, and when that is at all peculiar or characteristic of the species, it should never, I think, be omitted in a detailed description.

fect. To accomplish this object, I had to keep in view two important particulars,—to make the descriptions clear and distinctive, and at the same time to condense the whole as much as possible, so that the work might be comprised in a single volume, of a bulk not inconvenient for the use of the traveller." Further, "It will be perceived from this account that the work has no pretensions to originality. My task has been to translate and harmonize, as well as I could, the descriptions of different botanists; and I have added the result of my own observations only where it seemed to be absolutely necessary: considering that to give my own view would often have only been, to add one more to opinions already too numerous."

The volume of Mr. Woods will readily pass the first ordeal of publishers and critics, who may ask whether the work is one calculated to meet any desideratum in botanical literature. We have repeatedly been asked by English botanists, particularly ladies, who were intending to make a more or less extensive continental tour, what portable work they should carry with them, to assist in identifying the plants they might find in their route. Hitherto, we could seldom give any satisfactory answer to this interrogation; partly because the Latin, or even the modern languages, often presented an impediment to the use of the continental floras; and partly because those floras usually refer to a single country or kingdom, while the tourists would visit portions of several. In the name of the work now under notice, we are at length furnished with a ready and sufficient answer to the same query, whenever it may be again proposed to us.

Secondly, allowing that an Author may fairly claim the right of projecting a work according to his own conceptions of what is desirable and feasible, its purchasers have also their right to expect that the published work shall be carefully and faithfully executed in accordance with the title and plan announced by its Author. Now, while in some respects the plan of Mr. Woods's work seems open to considerable improvement, and numerous small defects of execution appear in his pages, we still cannot hesitate to say in general terms, that the Author has well and truly performed his part of the implied contract with the public, that is, with its purchasers. From the internal evidence there can be no doubt that much assiduous attention has been bestowed on 'The Tourist's Flora,' and that much effort has been made to render it complete, concise, accurate, and serviceable, so far as its plan may allow. This is no small merit in these days of hasty book-making, when so many "new works" in science are got up by needy book-makers, for speculative booksellers to advertize and puff into circulation; but in which the purchaser finds only a title-page *ad captandum*, a few showy pictures for "illustrations," and a *quantum* of text noticeable chiefly for its plagiarism and imperfections.

If, however, we subject 'The Tourist's Flora' to a third and more searching test, by inquiring whether it can be regarded as a contribution towards the *advancement* of science, the reply must be in the negative. Progress does not appear to have been within the Author's contemplation; his object having been to repeat or to re-write the ascertained characters of known plants, and to transcribe the published descriptions of the less known or the merely book species. The distinctive peculiarity of the work is found in the space of Europe to which it relates, and also in its being a continental Flora written in the English language; its merit lies in the well-considered condensation and prevailing precision of its descriptions. True, in various instances, these descriptions are clear and constant only in the printed book, while they are inapplicable and false in the real plants. But we know no living botanist who could avoid making or repeating imperfections of this kind, in attempting to describe all the plants of a space so wide.

Mr. Woods omits the authority for his nomenclature, by not adding the name of the botanist who first applied the generic and specific names he has adopted for the plants. The practice of using this addition has led to so much falsification of nature, through its ministration to the vanity of species-makers, that we are quite content to feel occasionally the small inconvenience of the omission, rather than be subjected to the great and frequent evils of falsification indirectly resulting from the practice. The Author well meets the difficulty, too, by adding the most needed synonymes in his index, with a reference to the names under which he has described the species; while, in the body of the work, he quotes directly from the respective writers the descriptions of species which are obscure or doubtful, adding the writer's name to the description, not to that of the plant. By this plan the compliment becomes one of very doubtful quality; being often and obviously awarded to the obscurity of the describer, or to the falsifying vanity of the species-maker. It may, indeed, be otherwise in some cases, and eventually prove only a just tribute to the acuteness or good fortune of a discoverer. Meanwhile, the plan keeps many suspicious novelties in the category of things to be held doubtful. And if we find the name of any particular botanist repeatedly quoted in this way, we are naturally led to doubt the soundness of his judgment, as a distinguisher of species, whatever credit may be awarded to him as an acute observer of varieties.

We have still to mention one department of the work, in reference to which we feel called upon to express much disappointment, on account of its being so imperfectly executed as to be virtually false or faithless. The Author seems to have adopted no ruling plan or principle in giving the habitats of the species, except the old practice of naming habitats for those species which he supposes to be less generally distributed. Now, it would have been perfectly easy to have started on the comprehensive plan of omitting the names of countries for all species that have been ascertained to occur in all the six principal divisions of his area, as indicated on the title-page, or even to have made these leading divisions rather more numerous, by subdividing some of them. The several countries might have been expressly named for other species that do not occur in all the divisions or subdivisions. And more special indications could have been given, by the names of small states, provinces, &c., for species of still more local or limited occurrence. Some regular rule of this kind would have been far more philosophic and useful, than the hap-hazard course taken by the Author, and carried out so very imperfectly, and even falsely.

We venture on the epithets of 'false' or 'faithless;' because, in numerous instances, the habitats are so indicated as to convey wrong information, through omissions that could arise only from utter indifference to accuracy, or the most negligent inquiry. A charge of this nature, however, should never be made by a reviewer, without the citation of examples in illustration of what is meant, and in proof of its accuracy. Accordingly we will select some examples, and take them from that portion of the volume which must have been last printed, and which should consequently be least behind the knowledge of the day.

In the last order treated, that of Lycopodiaceæ, we find the habitats of "Scotland, Dauphiné, Germany," indicated for Lycopodium annotinum by the usual abbreviations. The readers of the 'Phytologist' are well aware that the species named has likewise been found in England, and that an early scepticism of the fact was eventually removed by good evidence of its reality. The announcement and confirmation were made long enough ago for the habitat in 'The Tourist's Flora' to have been given more correctly. But as this record does not yet appear in our general floras of Britain, or other collective works, even an Author on the "Ferns of the British Islands" may readily be excused for overlooking it. The omission of Wales, also, may have been intentional, in the belief that the species has become extinct there. We cite this instance only in illustration of the kind of inaccuracy in the work, and not as an example for which the Author can be censured.

But the inaccuracy becomes censurable when we see the habitats of Lastræa Fœnisecii given as "Ireland, North England." We believe that the first particular notice of this Fern, as an English species, was made by the Rev. W. T. Bree, in a list of Cornish plants, nearly twenty years ago. And though it certainly has occurred in some northern counties of England, it appears to be far more a southern than a northern fern, and therefore the express limitation to the North, and implied exclusion of the South, is one of those careless inaccuracies which are censurable on account of their tendency to mislead botanists who use the work, by indirectly misrepresenting well-ascertained and long-recorded facts. Of the three English counties mentioned for the species in 'Newman's History of British Ferns,' two are quite southern, Cornwall and Sussex; the other is Cumberland.

So, again, the habitats of Scheuchzeria palustris are cited as "Yorkshire, Vosges, Germany." Of course, any reader of 'The Tourist's Flora,' who relies upon the Author's fidelity in stating habitats, will suppose that the Scheuchzeria is not known in any other county of Britain; or, at least, was not so known up to the year 1850. But in the second volume of the 'Cybele Britannica,' published in 1849, four other counties are mentioned for it, and two of them by no means recent discoveries. In the 'New Botanist's Guide,' published in 1835 and 1837, the counties of Salop and Perth are reported, in addition to that of York; and there are other and earlier records for the plant in those two counties. Here, we may say, that the Author has not made any attempt to ascertain and give the present state of knowledge on his subject, but has idly repeated only what was known a quarter of a century ago.

We could cite many such instances, but three or four will suffice to show that we do not censure 'The Tourist's Flora' in this particular without good grounds for doing so. One more example shall be given, because the plant has excited lively attention and interest among British botanists, and even in some degree among continental botanists also. The Anacharis Alsinastrum of Babington appears in the work of Mr. Woods under the name of Udora occidentalis. The habitats are thus indicated, "Damschen See, near Stettin, Pomerania, Leicestershire." Truly, the readers of the 'Phytologist' will be surprized to learn that this remarkable plant was known in only one county of Britain up to the year 1850. In the 'Cybele Britannica,' 1849, localities in seven counties are reported, with reference to their authorities, but two of them are suspected. Mr. Woods may here plead that the discoveries are quite recent, and that the writer of a general work must almost inevitably be a little behind the knowledge of the day or year of his publication. Such a plea would in general be a valid exoneration for overlooking things of recent record. But the instance of the Anacharis or Udora is too remarkable and exceptional for the plea to be allowed. If an Author is carelessly inaccurate in stating the habitat of this plant, what may we expect in the case of other plants less likely to command attention and accuracy? Just what we have cited in the Lastræa and Scheuchzeria above mentioned, and just what we could show in so many other instances.

With regard to the admission of some species, and exclusion of other species, presumed to be of exotic origin, and only naturalized within the area of his Flora, the Author may be held at liberty to follow his own judgment or caprice. But some of the omissions, in contrast with the admissions, strike us as belonging rather to the category of caprice than to that of judgment. Thus, to admit the Canna Indica, and exclude the Sisyrinchium anceps, seems a somewhat strange preference.

The same license and same comment may likewise be extended to the very debateable ground of species or variety. And as an instance of capricious separation, we may refer to the severance of Festuca pratensis and F. loliacea, as two distinct species, although a root of the latter absolutely can and does assume the characters of the former under cultivation, and the gradual transition from one to the other can be so easily traced in meadows where both occur. On the other hand, strange to say, after all that has been written about "Primula elatior," in England, and the correct manner in which P. veris, elatior, and vulgaris are entered in 'Babington's Manual,' and other works, we find the Author of "The Tourist's Flora" still confusing together the P. elatior of Jacquin, and the umbellate variety of P. vulgaris.

Indiscriminate eulogy in the notice of a new publication likely to excite attention, is a fraud upon his readers by the reviewer. And censure without citing examples of what is faulty, is unfair to the Author. We have endeavoured to avoid both these objectionable modes of noticing books, at present too much in vogue. "The Tourist's Flora" is a good and serviceable addition to our botanical literature, not without some serious deficiences; but its excellencies very much outbalance its defects.

C.

Contents of 'Hooker's Journal of Botany,' No. 21, *September,* 1850.

Contributions to the Botany of Western India. By N. A. Dalzell, M.A.

Continuation of Mr. Spruce's Letters from South America.

Notes on the Botany of Jamaica. By Dr. R. C. Alexander.

Botanical Information: Orchidaceæ found in Assam, &c. The late Professor Koch's Herbarium.

Notice of Macfadyen's Flora of Jamaica, second volume.

Contents of the 'Botanical Gazette,' No 21, *September,* 1850.

Some observations on the Herbaceous Rosaceæ. By T. Irmisch. [From the 'Botanische Zeitung.']

On Sagina apetala and S. ciliata. By Charles C. Babington, M.A. [The Author contends that these are two distinct species, and that both are also distinct from the true S. maritima. Unfortunately, his descriptions and arguments are here expressed in language more than usually obscure and ambiguous; so that his readers are left to discover his views, &c., rather by guessing what he intended to say, than by reading literally what he has written. We could wish much that so good an observer would learn to express his observations more clearly with the pen; for his 'Mastership of Arts' most certainly does not yet extend to any mastery in the art of writing clearly. In order to show that our own stricture upon his pen is simply critical, and not (as sometimes alleged) hyper-critical, we will tax the patience of our Phytological readers by citing a short passage in illustration; but selecting one which will at the same time convey some botanical information, *if* or *when* understood. After stating the points of distinction between Sagina maritima, and the other two species above mentioned, Mr. Babington adds that,—

"There is another plant usually called S. maritima, in England, *which* is the S. debilis of Jordan, and the S. maritima of Grenier, *which* may very probably be a maritime state of S. apetala, but differs from *it* by the much greater size of all *its* parts, *its* awnless leaves, *its* sepals not spreading from the ripe capsule, and equalling, or slightly exceeding *it*. *Its* capsule is of the same form, *its* mode of growth is apparently similar, and *its* leaves are sometimes bluntish, and in other instances have a long apiculus."

What are the grammatical antecedents to the second "*which*" and first "*it*" of the passage quoted? Through the want of a conjunctive word, we are left in the uncertainty of two antecedents for the former; while the grammatical antecedent of the latter is certainly the " maritime state" of S. apetala, which cannot be intended by the writer. Then we have five repetitions of the pronoun "it, its, its, its, it," all in one sentence, though apparently intended to refer to three different objects or antecedents, which are confused together through this use of the one ambiguous substitute for their names. Next follow the halves of two comparisons, both meaningless, because neither of them is completed by any mention of the object with which "it" is to be compared. But, if we rightly guess at the Author's meaning, it may be conveyed without confusion or ambiguity, and still nearly in his own words, by changing the grammatical construction of the passage, and supplying the omissions, thus:—

"There is another plant usually called S. maritima in England, which is the S. debilis of Jordan, and the S. maritima of Grenier, and which may very probably be a maritime state of S. apetala; but it differs from the ordinary form of that species by the much greater size of all its parts, by its awnless leaves, and by its sepals not spreading from the ripe capsule, which they equal or slightly exceed. Its capsule is of the same form as that of S. apetala; its mode of growth is apparently similar to that of the same species, its leaves are sometimes bluntish, and in other instances they have a long apiculus."]

Literature: Thurmann's Essai de Phytostatique. Payer's Botanique Cryptogamique. Contents of botanical journals.

Proceedings of Societies: Linnean Society. Microscopical Society. Botanical Society of Edinburgh.

Miscellanea: Record of Localities. Morphology of Grasses.

On the appearance of Atriplex hortensis, Linn., *near Worcester.*

By Edwin Lees, Esq., F.L.S.

As I was strolling the other day with a friend along the embankment of the Oxford Railway, at Tallow Hill, near Worcester, which has been lying abandoned and neglected for the last three years, I noticed among the rank weeds growing about, a queer looking plant unknown to me in fructification, which I at first took for some species of Dock. There was plenty of it, so I carried one off, and found on examination at home that it was an Atriplex, and it turns out to be A. hortensis, *Linn.*

It is characterized by its very large green reticulated and entire perigynes, devoid of all tubercles or scaly granulations, though its foliage is as "frosty" as any others of this puzzling tribe. Dr. Bromfield has mentioned it as occuring in a wild habitat on the coast of the Isle of Wight (Phytol. ii. 330); but as at present no place is assigned to it in our Floras, at the dagger's point (†), I am unaware to what extent it may have been noticed by other botanists. At all events, this is its first recorded appearance in Worcestershire. If we are to have any migratory or uncertainly occurring plants at all in our floras, I can see no good reason why this should not possess a nook in a British list, as it does in the 'Flora Gallica,' from which work I subjoin the following short account of it.

"Atriplex hortensis, Linn. Sp. 1493; Dod. Pempt. 615; Blackw. Herb. t. 99, et 552; *A. domestica.* Matth. Valgr. 459; *Arroche, Bonne-dame.*

α. caule herbaceo erecto, foliis oblongo-triangularibus subdentatis, floribus racemosis axillaribus terminalibusque, calycibus seminum ovatis reticulatis acutiusculis integerrimis.

β. A. hortensis rubra. Bauh. Pin. 119.

Flores subherbacei, Junio. In hortis et olitoriis colitur."*

This Atriplex appears to have been an old olitory herb, though I should think, worn out and almost entirely forgotten in this country, whatever charm it may still hold upon continental cultivators of vegetable condiments. I have no recollection of observing it anywhere in our town or village gardens, though doubtless it must have lain neglected *somewhere*, and is now coming up to present its claims again.

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* Flora Gallica, seu Enumeratio Plantarum in Gallia sponte nascentium: auct. J. L. A. Loiseleur Deslongchamps, tom. i, p. 218.

As our ancestors had it probably on their plates, we must now take it up as literary diet.

I should remark that the spot where I noticed the Atriplex hortensis to be rather plentifully growing, is *made ground*, raised upon pasture land, forming, in fact, the foundations and plateau of the intended Railway Station, and the materials of earth and rubbish cannot have been brought from any distance, as a cutting commences a short distance from the spot. The seeds have perhaps lain undisturbed for many years, till the shifting and upraising of the soil has enabled them to exercise their vegetating powers.

EDWIN LEES.

Henwick, near Worcester,
Sept. 16, 1850.

On the occurrence of Lobelia urens in Kent.

By WILLIAM THOMSON, ESQ.

A living specimen of this rare plant has just been presented to me by the Rev. J. Dix, of Charing. It was found by Mrs. Dix in a wood near Ashford, on the 27th of August last; and since it is usually supposed to be a Devonshire plant, its discovery in the county of Kent may be deemed worthy of record. Mr. Dix informs me that the plant grew about a yard from the path in a chestnut wood, which had been cut down; that it was in full vigour, and that its centre formed a superb spike of flowers. He adds, that there is no apparent possibility of its having been placed there through man's instrumentality.

W. THOMSON.

Foxley Road, Kennington,
Sept. 10, 1850.

New Station for Mentha sylvestris in Glen Ogilvy.

By W. M. OGILVIE, ESQ.

IN the early part of last season I had the pleasure of meeting with Mentha sylvestris, in the Den of Glammis, on the north side of the stream that runs through it, and about half a mile from its entrance. Circumstances prevented me from visiting the station at the time recorded for its flowering. Being in the same locality the other day, I intended to have visited the station to see if there was any appearance of its flowering, had I not met with it in Glen Ogilvy, on the banks of the same stream, but about three miles further east than the Den of Glammis. At the time of my revisiting this place, the 8th and 9th of August, it was in full flower. I walked along the banks of this stream for about half a mile and found it in various spots on both sides, and I have little doubt, from its appearance, that it may be found as far up as the source, among the Sidlaw Hills. The place, however, where it seemed to be in greatest profusion, was that part of the stream in front of the farm house of Kilmundy, from which it is separated by about a field's breadth, here it was in so great profusion that I might have gathered a thousand specimens in a few minutes. In the January number of the 'Phytologist,' for 1849, there is 'a note on, and query by my friend Mr. Lawson, respecting the flowering of the Mentha,' at the station recorded for it in the 'Flora of Forfarshire,' viz., 'side of the new Glammis road, where it emerges from the Sidlaw Hills into Glen Ogilvy.' Mr. L. had walked a distance of eleven hundred miles to see it in flower, but was disappointed, and from this, as well as from its growing only by the roadside, he seems to have some suspicion of its being native: he will therefore be glad to observe the record of another station where there can be little doubt of its being native, and where it flowers freely. I see no reason, however, to doubt its being native even at the roadside station. The road was made, I believe, about forty or fifty years ago, and at this place was made through a waste moor; even yet the sides of the road are lined with heath and broom, among which the Mentha in some places is growing, and which seems to have been as little touched with the spade as the moors and waste grounds around. I passed this station on my way to Dundee, and was pleased to observe, that, even here, it was in flower, but sparingly. It is rather a strange circumstance that it should never have been observed in flower at the road-side station by any of our local botanists. Mr. Lawson mentions that the late Mr. Jackson never found it in flower, and I have seen none who have previously observed it. The late Mr. Drummond, however, must have gathered it in flower, from the remark made on it in 'Hooker's Flora.' This season has been remarkably dry in this part of the country; can this have had any effect on its flowering?

My own observations on the subject coincide with those of Dr. Bromfield, in the February number of the 'Phytologist,' for 1849. "I apprehend," he remarks, "that Mentha sylvestris, like many other plants of its order, has a great tendency to exhaust itself in root, and that whilst in some of its stations it may be induced to flower freely, in others, circumstances rather favour its propagation by the creeping rhizoma." The plants at the road-side station were dwarf and very much scattered, sending up only here and there flower stems, while those by the side of the stream were tall, robust, and much thicker clustered together. I shall be happy to supply specimens to any of your readers with whom it may be a desideratum.

WM. M. OGILVIE.

Castle Street, Dundee, Sept. 18, 1850.

Botanical Notes, the result of a visit to Glamorgan and Monmouthshire, in the latter part of July and beginning of August, 1850. By JOSEPH WOODS, ESQ., F.L.S.

MOST botanists who have attended much to the species of Rubus, form their idea of what constitutes a species rather from the general habit, than from particular characters, and where there are no clearly marked and uniform characters, this is perhaps the only way of forming correct opinions. But however indispensable as a beginning, it is only a beginning. It is true that what is called habit is formed by the combination of many small particulars, but these are so numerous, so indistinct, and often so inexplicable, that it is impossible for one man to communicate to another his perception of habit; and his knowledge, as far as that is concerned, dies with him. No two persons arranging a collection of plants by the habit alone, would distribute them into the same set of species. Similar plants must be put together, but then some definite characters must be elaborated from their comparison. This comparison then of character with habit is the great desideratum of the botanist in the formation of species, and particularly important in the species of Rubus, and it is an object which I have kept in view in making the following observations. Besides the close affinity between the species of this genus, and the variations to which they are subject, there are some further difficulties in the way of forming a correct idea of the habit of a bramble. The species grow mixed and entangled together, and the habit is obscured. The mode of growth too is adverse to our studies. The root sends out a shoot one year, which bears flowers in the next, when the leaves had all disappeared. At the same time it puts forth new shoots, but growing as it usually does, in hedges or among bushes, it is not easy to determine with certainty whether the old flowering stem and the new leafy shoot proceed from the same root. Add to this, that where the root spends itself in making a great number of flowering branches, it is very apt to neglect forming new shoots; and *vice versâ*, when the new shoots are strong and numerous, the flowering branches are apt to be deficient, so that it is no uncommon thing to find the shoots of one species and the flowering branches of another, almost exclusively in the same bush.

My first station was at Sketty in the neighbourhood of Swansea. The species most abundant there are R. discolor, R. cordifolius, and R. Koëhleri; the scarce one R. macrophyllus. These are all tolerably distinct in their general appearance. R. macrophyllus is rather more prickly than it usually is in Sussex; but even with us the character is variable. R. cordifolius is almost exclusively the variety with narrower leafits, and a stem more or less hairy, *i. e.*, it is the variety considered by Dr. Bell Salter to be at once the R. sylvaticus and the R. villicaulis of the 'Rubi Germanici.' In the 'Tourist's Flora,' I have followed Babington, in making R. cordifolius the typical form. I am now almost inclined to repent of this, since, though R. cordifolius be the common variety in the south and east of England, the var. R. rhamnifolius seems to be the most widely diffused. The leaves are elliptic or somewhat rhombic, or perhaps obovate and acuminate, with or without a slight indentation at the base, but not truly cordate.

On the borders of the Crwmlyn Bog, I observed a still more woolly plant, which I at first thought might belong to R. cordifolius, but the leaves have underneath something of the glittering appearance of R. leucostachys, with which I am now disposed to join it. It has the mixture of a few smaller prickles. R. radula occurs in the same neighbourhood.

At Horton, on the borders of Gower, and, I believe, on the limestone, I noticed what is perhaps R. fuscus (according to Dr. Bell Salter, a variety of R. Koëhleri), but which, but for the presence of setæ, might pass for a variety of R. corylifolius. R. cæsius, is abundant on the limestone of Gower.

My next station was Pont-nêdd-vechan. R. discolor and R. Koëhleri are here abundant, and easily distinguishable. The former, however, does not ascend into the ravines, which form the character of this part of the country. Dr. Bell Salter, in his notes on R. argenteus, Bot. Gaz., ii. p. 151, says, that the hairs have the "opaque, lustrous tint common to the tomentosi." I do not understand this, since if I am to consider the word *opaque* as opposed to translucent, I am quite at a loss for his character of the *tomentosi*, for the hairs amongst them seem to be individually just as translucent as those of the Corylifolii. The passage above cited forbids us to oppose it to shining, and besides, R. leucostachys, than which no species has more shining hairs, is placed among the opaque-haired species. While on this head, let me add that Dr. Bell Salter puzzles me, by describing the hairs of R. argenteus, as "divaricating and at the same time somewhat patent," and in speaking (p. 147) of the figure of R. macrophyllus, in the 'Rubi Germanici, he says, the hairs are drawn "not truly patent, but patent divaricating." I have always understood divaricate to be patent in a very high degree. With respect to R. discolor, it appears to me that the closeness of the pubescence does not depend on its being adpressed, but on its being stellate and very short. Another incorrectness, and in which I confess I have been a participator, is in describing the *margin* of the leafits as bent down. The curve is longitudinal, slightly modified by the somewhat wavy nature of the margin. Let me add, in making these remarks, that I am very sensible of the great merit of this paper, which I think is a considerable step forward in our knowledge of this intricate genus.

R. rhamnifolius is also common about Pont-nêdd-vechan, and as before, usually hairy, so that I have sometimes found it difficult to draw a line between it and R. leucostachys. When the hairs are very numerous it is difficult to determine whether the stem beneath is polished or not. Sometimes, however, its red polished stems are very conspicuous. At other times it shows a tendency to produce over-lapping leafits. The prickles on the old stem are sometimes few and small, while those on the young shoots are large and numerous, showing that in different years, or at different seasons, a different degree of prickliness is produced.

Dr. Bell Salter joins R. villicaulis, β. of Babington's [first] edition, to leucostachys, and Babington in his later edition has joined R. villicaulis altogether to R. leucostachys. I am not inclined to dispute this decision, but I observe here two forms which apparently belong to this species, the first has a lengthened panicle, generally furnished with one or two simple cordate leaves, lilac flowers, and a stem with few or none of the smaller scattered prickles. The other, with a shorter, leafless panicle, white flowers, and a much greater proportion of smaller scattered prickles. The young shoots also, in the specimens I have brought home, exhibit few setæ. The latter form is very common among the hills of Glamorgan and Monmouthshire, the first is comparatively scarce.

Rubis saxatilis occurs occasionally in the narrow valleys above Pont Nedd vechan, and R. subcrectus soon after leaving the Merthyr road, in order to ascend Pen-y-Craig. I did not see R. plicatus anywhere in Wales.

From Pont-nêdd-vechan I went to Pyle, hoping to find something among the Rubi of the magnesian limestone; but I was disappointed. R. discolor grows very luxuriantly near the little stream. Some of the flowering branches must have been above five feet long, of which the branched panicle occupied at least two.

My next station was Sully, south of Cardiff. Here R. cæsius is abundant, as it is in Monmouthshire, and often without hairs or setæ, apparently the R. tenuis of Babington. A somewhat remarkable form of Rubus with some resemblance to some of the forms of R. corylifolius is found along the shore. The stem is slightly hairy with stellate hairs, like those of R. discolor, but with a mixture of single hairs, each tipped with a gland. The stem has a tendency to be pruinose. It suggested to me the idea of its being a hybrid between R. discolor and R. cæsius, both of which are common in the neighbourhood.

At Caerphilly I saw nothing among the Rubi different from what I had already observed, and having hurt my foot I could not scramble much after them. At Newport, I observed two forms which seemed to deserve notice. One had the pubescence and nearly the panicle of R. discolor, but the stem on the old shoot had eight slight furrows, instead of as usual, being five-sided, and that on the new shoots was armed with very unequal, but not very numerous prickles. I cannot pretend to assign a name to it. The other is, I think, distinctly R. hirtus, and I met with it again at Ragland and at Monmouth. At Ragland also I met with a Rubus with a hairy stem, and nearly equal angular prickles, but differing from R. rhamnifolius and R. leucostachys, in having uniformly, at least as far as I could trace it, only three narrow leafits. The panicle is hardly corymbose and the prickles are nearly straight. With respect to the last character, it is to be observed, that when a branch is preparing to take root, sometimes even before any fibres are thrown out, the direction of the prickles and leaves towards the extremity is reversed, and next to these we find the leaves set on horizontally, and the prickles which ought to be deflexed or recurved, are horizontal and nearly straight, as if nature had not determined which way she should turn them.

At Monmouth, besides the plants already mentioned, I gathered a setigerous Rubus, with a very widely-spreading and leafy panicle. Perhaps a variety of R. Radula, and another which agrees pretty well with Babington's description of R. Schleicheri. At the foot of the Wynd Cliff there is a form of R. corylifolius, with few and comparatively small prickles, and generally only three very broad and overlapping leafits. I noticed, at Farnborough, a plant with a similar general habit, but more prickly, and with five, or sometimes seven broad overlapping leafits.

I cannot say that in this investigation I have advanced much in forming a conception of the distinct habit of the Rubi, or of connecting it with character; on the contrary, like the green track over the moors described by Scott, I have sometimes lost, on a nearer approach, distinctions which seemed to be sufficiently evident at a distance: yet it first seems essential. To have to examine in detail every bramble one meets with, before we can form an opinion of the species, requires a patience almost superhuman, and without some definite notion of habit, this is unavoidable. R. discolor is generally very distinguishable, yet about Newport I could not always separate it in its general appearance from R. rhamnifolius. R. rhamnifolius is usually in the form *sylvaticus*, and not always readily told from R. leucostachys. In H[illegible]ock Wood, near Monmouth, I observed two shoots growing side [illegible]ide, in form, colour, and general appearance exactly alike. On examination, one belonged to R. rhamnifolius, while the multitude of setæ on the other obliged me to refer it to R. rudis. The flowers in the bush seemed all to belong to one species, and as the panicle was setigerous and the flowers white, I concluded them to belong to R. rudis. In the second form of leucostachys, as exhibited at Pont-nêdd-vechan, there is a sharpness in all the parts which catches the eye, and the calyx is spreading and star-like immediately after flowering, though it seems to become reflexed in the fruit, but these appearances were less evident in other places. I have thought that I knew R. Koëhleri, but some of its varieties have in a general view so close a resemblance to some of those of R. Radula, and perhaps to some other setigerous species, that I have learnt to doubt my knowledge. In R. corylifolius the degree of overlapping in the leafits varies very much, yet it must be reckoned one of our best marked species.

Beyond Rubus I have little to say. Œnanthe Lachenalii is the usual Œnanthe of the marshes in these parts, and not O. pimpinellifolia. The Statice of the rocks is Dodartii. In Armeria maritima the tube of the calyx is not "uniformly hairy," but there is an intermediate line of hairs between the nerves; this I have observed also in Sussex. Fœdia Auricula grows in Gower, near Norton, and more

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From Pont-nêdd-vechan I went to Pyle, hoping to find something among the Rubi of the magnesian limestone; but I was disappointed. R. discolor grows very luxuriantly near the little stream. Some of the flowering branches must have been above five feet long, of which the branched panicle occupied at least two.

My next station was Sully, south of Cardiff. Here R. cæsius is abundant, as it is in Monmouthshire, and often without hairs or setæ, apparently the R. tenuis of Babington. A somewhat remarkable form of Rubus with some resemblance to some of the forms of R. corylifolius is found along the shore. The stem is slightly hairy with stellate hairs, like those of R. discolor, but with a mixture of single hairs, each tipped with a gland. The stem has a tendency to be pruinose. It suggested to me the idea of its being a hybrid between R. discolor and R. cæsius, both of which are common in the neighbourhood.

At Caerphilly I saw nothing among the Rubi different from what I had already observed, and having hurt my foot I could not scramble much after them. At Newport, I observed two forms which seemed to deserve notice. One had the pubescence and nearly the panicle of R. discolor, but the stem on the old shoot had eight slight furrows, instead of as usual, being five-sided, and that on the new shoots was armed with very unequal, but not very numerous prickles. I cannot pretend to assign a name to it. The other is, I think, distinctly R. hirtus, and I met with it again at Ragland and at Monmouth. At Ragland also I met with a Rubus with a hairy stem, and nearly equal angular prickles, but differing from R. rhamnifolius and R. leucostachys, in having uniformly, at least as far as I could trace it, only three narrow leafits. The panicle is hardly corymbose and the prickles are nearly straight. With respect to the last character, it is to be observed, that when a branch is preparing to take root, sometimes even before any fibres are thrown out, the direction of the prickles and leaves towards the extremity is reversed, and next to these we find the leaves set on horizontally, and the prickles which ought to be deflexed or recurved, are horizontal and nearly straight, as if nature had not determined which way she should turn them.

At Monmouth, besides the plants already mentioned, I gathered a setigerous Rubus, with a very widely-spreading and leafy panicle. Perhaps a variety of R. Radula, and another which agrees pretty well with Babington's description of R. Schleicheri. At the foot of the Wynd Cliff there is a form of R. corylifolius, with few and comparatively small prickles, and generally only three very broad and overlapping leafits. I noticed, at Farnborough, a plant with a similar general habit, but more prickly, and with five, or sometimes seven broad overlapping leafits.

I cannot say that in this investigation I have advanced much in forming a conception of the distinct habit of the Rubi, or of connecting it with character; on the contrary, like the green track over the moors described by Scott, I have sometimes lost, on a nearer approach, distinctions which seemed to be sufficiently evident at a distance: yet it first seems essential. To have to examine in detail every bramble one meets with, before we can form an opinion of the species, requires a patience almost superhuman, and without some definite notion of habit, this is unavoidable. R. discolor is generally very distinguishable, yet about Newport I could not always separate it in its general appearance from R. rhamnifolius. R. rhamnifolius is usually in the form *sylvaticus*, and not always readily told from R. leucostachys. In H[illegible]ock Wood, near Monmouth, I observed two shoots growing side [illegible]ide, in form, colour, and general appearance exactly alike. On examination, one belonged to R. rhamnifolius, while the multitude of setæ on the other obliged me to refer it to R. rudis. The flowers in the bush seemed all to belong to one species, and as the panicle was setigerous and the flowers white, I concluded them to belong to R. rudis. In the second form of leucostachys, as exhibited at Pont-nêdd-vechan, there is a sharpness in all the parts which catches the eye, and the calyx is spreading and star-like immediately after flowering, though it seems to become reflexed in the fruit, but these appearances were less evident in other places. I have thought that I knew R. Koëhleri, but some of its varieties have in a general view so close a resemblance to some of those of R. Radula, and perhaps to some other setigerous species, that I have learnt to doubt my knowledge. In R. corylifolius the degree of overlapping in the leafits varies very much, yet it must be reckoned one of our best marked species.

Beyond Rubus I have little to say. Œnanthe Lachenalii is the usual Œnanthe of the marshes in these parts, and not O. pimpinellifolia. The Statice of the rocks is Dodartii. In Armeria maritima the tube of the calyx is not "uniformly hairy," but there is an intermediate line of hairs between the nerves; this I have observed also in Sussex. Fœdia Auricula grows in Gower, near Norton, and more abundantly in some barren fields near Ragland. I acknowledge that the plant exhibits in other particulars the closest resemblance to F. dentata, especially to the variety F. eriocarpa, but I cannot persuade myself that so marked a difference in the fruit is of no value. The Valeriana of the valleys is V. sambucifolia. The leafits are four or five pairs, with a trifid terminal leafit. Near Monmouth I sometimes found five or six pairs with a quinato-pinnatifid terminal leafit. The cup from which the processes of the calyx arise, is sometimes fully as wide as the widest part of the conico-ovoid seed, at others it is divided quite down to the base. The rhizoma is sometimes almost perpendicular, exhibiting one set of fibres above the other; but I did not notice this in any flowering specimens, and in such cases the lower root, not the upper, sends forth slender runners. The upper is probably the production of the year, instead of a flowering stem, and it would flower, and send out runners the next year. Independent of this descending rhizoma, there are, both for the flowering and barren plants, superficial runners, often very numerous, producing in their course pairs of scales, and sometimes a single leaf; but I could not see any pairs of leaves, except at the end, were the fibres of a new root were produced.

Triticum caninum, which, I think, is not mentioned in the Botanists' Guides, grows near Pont-nédd-vechan, both on the Purthin and on the little Nêdd, and there are several tufts of Gnaphalium margaritaceum below the Dinas Rock, a large limestone rock rising abruptly at the head of the open valley. Lepidium Smithii grows at Pont-nêdd-vechan, and at Pont Walby. At the latter place, and, I believe, at Cil-Hepste, there is a curious form of Equisetum, perhaps of E. arvense, in which the lower branches are subdivided, sometimes even producing secondary whorls. It has the long terminating division of the frond which has been noticed in E. umbrosum, with which in other respects it does not well agree. Its situation on wet banks, or in the spray of a waterfall, is very different from that in which we usually find E. arvense, and it may perhaps prove a distinct species. Orobanche Hederæ grows at Penrice and at Sully. Genista Anglica, which I do not see mentioned in the "Botanist's Guide" for Glamorgan, grows at Rhydgroes, near the station of Rubus suberectus. Mr. Watson in the Bot. Gaz. i. 59, has given a list of plants not very rare, but not hitherto recorded in the botany of South Wales. Of these Radiola millegrana occurs on the ascent of Cefn Brin, in Gower; and Silaus pratensis is common on the bog in the eastern part of the county.

Near Pyle, among the sand hills on the shore, is a large pond, called Kenfig Pool, which used to be celebrated for its pike, and which also contained a multitude of roach, serving as food for the pike, but whence of late years both pike and roach have disappeared without any apparent cause. I found nothing in the pool, but my friend Mr. Moggeridge has sent me lately some fragments of a Potamogeton, which, from the appearance of its seeds, I suspect, may be P. trichodes, at least they seem different from those of any acknowledged British species. In a moist hollow in this pool, growing on the sand with Erythræa pulchella and Centunculus minimus, there was a considerable quantity of what, from the description, appears to be the Myosotis multiflora of De Candolle. All the specimens I at first gathered seemed to be strictly annual, but on returning to the spot, I found in many plants traces of a descending rhizoma, and a second bundle of radical fibres, indicating the plant to be, sometimes at least, biennial. I suspect it to be a variety of M. palustris, without, however, relinquishing my opinion that it is the M. multiflora of the 'Prodromus.'

On a large limestone hill, near Pyle, called Newton Down, there is a great abundance of Ulex Gallii. There it keeps itself distinct from U. nanus by its habit; but about Monmouth intermediate states may be seen. The wings are very nearly equal to the keel in length; in individual flowers sometimes a very little longer (perhaps thirtieth or fortieth of an inch), when flattened against it, but this was not the usual case, and in the natural state the curve of the wings makes them appear shorter. Before the parts are fully expanded, the point of the keel sometimes does and sometimes does not project above the wings. In returning homewards, I examined the U. nanus, on the heaths about Farnborough, where the plants are smaller and slenderer than any I had seen in Monmouthshire; but the heaths there are periodically pared for fuel, and neither heath nor furze can grow to any size. In these also I should have described wings and keel as of equal length, but the former are now and then a very little shorter; they are always, however, narrower than the keel, which, before their full expansion, projects sometimes above and sometimes below them. On Ashdown Forest the wings are sometimes a little longer than the keel. Both U. nanus and U. Gallii have frequently flowers near the ends of the branches, as described in U. strictus, but their usual position in both is near the base of the primary spines, and never, as in U. europæus, scattered more than half along their length, or on the secondary spines.

I add the position of a few plants which have not yet found their way into the 'Botanist's Guide.' Aconitum Napellus, is, as I am told by Mr. Mr. Moggeridge, abundant on some bushy ground near Llanbrissant. Senebiera pinnatifida is found about most of the sea ports. Cardamine impatiens and Dipsacus pilosus are not uncommon along the Wye. Brassica oleracea, without a seed in the beak, is plentiful on the marl cliffs of Barry Island. Diplotaxis muralis is common about Swansea. Erucastrum monense at Nicholaston, in Gower. This was found by Mr. Borrer also at Merthyr. When Dillwyn's 'Botanist's Guide' was first published, Matthiola sinuata used to be found in several places among the sand-hills of the shore. Afterwards it disappeared. Two or three years ago it again showed itself, but has again disappeared. The corporation of Swansea, it seems, sometimes take turf from the sand-hills and replace the soil with some they want to get rid of from the neighbourhood of the town, and in these spots I noticed Calendula officinalis, Koniga maritima, Delphinium consolida, a cultivated Pimpinella, and other garden plants. This could hardly be the origin of the Matthiola; but I suspect that it has produced the D. consolida, noticed by Mr. Lees, at least I neither saw nor heard of the plant except in such situations. A more curious instance of incipient naturalization was exhibited a few years ago in the Yucca gloriosa, a root of which was cast on the shore of Cromlyn burrows. It established itself there, sending out suckers, and for some years seemed quite disposed to be permanent, till a storm buried it under a heap of shingle. Sagina maritima grows at Porth Cawl. Althæa officinalis in Barry Island. Lavatera arborea, is I am assured, wild in two places on the coast of Gower. Hypericum dubium is common among the hills both in Glamorgan and Monmouthshire. I see Mr. Bennet considers the plant he found on the Wye to be H. maculatum; mine seemed to be the common form of H. dubuim, without any approximation to the characters of H. quadrangulum. Hypericum montanum in woods on the Wye. I observed a single plant of Melilotus arvensis in a clover field at Sully. Rosa systyla occurs in Gower. Œnothera biennis in Barry Island. Sedum sexangulare was found by Mr. Motley at Bwlch Afen, a name I do not find in the map, but it is stated to be in the upper part of the valley of the Glamorgan Avon. It has since been sought for in vain. Carum verticillatum is frequent in boggy meadows about Swansea and Neath, and as this has long been well known, I wonder how it escaped from the first 'Botanist's Guide.' Galium tricorne grows in Barry Island. Inula Helenium in several places in Gower and about Sully. Veronica Buxbaumii I saw at Lavernock, a very out-of-the-way place for a stranger. Mentha rotundifolia is to be seen near Taaswell, and is common about Monmouth. Calamintha Nepeta at Caerphylly. Leonurus cardiaca abundantly at Kenfig. Atriplex Babingtonii on Sully Island and on the coast by Barry Island. Empetrum nigrum near Pont-nêdd-vechan. Euphorbia stricta at Tintern. Scirpus Savii on the sands at Oxwich and Porth Cawl, on the hills at Cefn Bryn, and Pont-nêdd-vechan. Carex lævigata near Oystermouth. Gastridium lendigerum at Pennarth. Agrostis setacea on Cefn Bryn and on Newton Down. Festuca uniglumis on the sand-hills in several places.

The botanist in Glamorganshire will look in vain for many plants which are found in similar situations in Yorkshire. Here is no Primula farinosa, no Geranium sylvaticum, and the Sesleria cærulea so abundant on the limestone of Yorkshire and Westmorland, and which reappears on the chalk hills of Rouen, refuses to grow on the limestones of South Wales, as well as on the downs of Sussex.

Joseph Woods.

Lewes, Sussex, September, 1850.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By William Arnold Bromfield, M.D., F.L.S., &c.

(Continued from page 1041).

*Carex Bœnninghauseniana.** On the margins of little shaded pools, in woods and thickets, chiefly on a clay soil, very rare? In Quarr Wood, near its western extremity, and on the sea-side of the main path among the thick brushwood, principally by the little pools or plashes in the hollow part of the copse, not far from the shore, in great plenty, June 15, 1843. Taken when first gathered for the following species, but pronounced on very competent authority to belong to the present. I must candidly own to feeling great difficulty in rightly understanding the difference betwixt these two alleged species, and have now lost the slight clew I once thought I possessed to distinguish them apart and on paper. The very limited time left me before taking my departure for the East, precludes me from entering on the discussion of this intricate subject at present. I shall therefore content myself with copying from my MS. descriptions of Hampshire plants that of C. Boenninghauseniana, drawn up June 16, 1843, from a large bundle of fresh specimens gathered in the locality above mentioned.

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* Named after C. M. F. von Bönninghausen, author of the 'Prodromus Floræ Monasteriensis,' 1824; the spelling ought therefore to be as above, not Boenninghausiana, as it is frequently written.

C. Boenninghauseniana, *Kunze*, Suppl. der Riedgr. p. 86, t. 22; Fl. Dan. xiv. t. 2300 (good representations both of our Vectian plant); E. B. Suppl. iv. t. 2910 (spikelets much darker than with us, and on the whole less characteristic than the two figures just quoted).

Plant growing in large tufts. *Root* creeping, cespitose and fibrous. *Culms* numerous, erect or inclining, spreading or radiating from the centre of the tuft, from one to two and a half, three, or even four feet in length, rigid, slender and striated, but stouter, firmer and much more acutely angular than in C. remota (to which, as to C. axillaris, this plant betrays a strong affinity), and especially so at and near the summit, below the inflorescence,* where the angles are very sharp and scabrous, and to a much greater distance downward than in that; in the middle and lower part quite smooth, the faces rather convex; leafless for a considerable distance from the top. *Leaves* linear, bright pale green, the superior ones narrow, as long or longer than the culms, more usually shorter, about one to one and a half line in breadth, flattish, or at least much less channelled or concave than in C. remota, very acutely pointed and tapering, with triangular, scabrous points; rough along the edges and keel for about half their length downwards; those towards the base of the culm very greatly shorter than the superior leaf, the lowest of all shorter even than their sheathing bases. *Spike* terminal, simple, much shorter for the size of the plant than in C. remota, from one and a half to three, four or more inches in length; rachis straight, with three very unequal faces, one of them much broader than the other two (hence appearing at first sight two-edged†), the angles very acute and rough, with cartilaginous serratures. *Spikelets* sessile, ovate or ovate-lanceolate, acute, the two lowermost considerably distant from each other, but less so than in C. remota,‡ the third and even sometimes the fourth from the bottom tolerably wide apart, and all more or less compound at their base, sometimes (though rarely?) simple, their spiculæ more or less spreading; subterminal spikelets approximate, the terminal crowded, smaller and more pointed than the basal, and simple. *Bracts* subulate, foliaceous, erect, very rough on the margin and keel, with trigonous points, the lowermost bract always much longer than the rest, and generally overtopping the spike, often quite as long as in C. remota, the remaining bracts always as remarkably shorter than in that species, the inferior bracts not reaching the summit of the spike, those still higher reduced to mere subulate points of their broad, glume-like bases, and below the crowded terminal spikelets scarcely distinguishable from the glumes themselves; in these respects agreeing with C. divulsa, to which, although sufficiently distinct from both, our present plant and C. remota bear a considerable degree of resemblance. *Glumes* ovate, acute and even mucronate, membranous, at first greenish and silvery, finally pale tawny, and having a broad, tapering, bright green keel, and a central, pellucid, often roughish nerve continued to their apex. *Staminate florets* in all my specimens apparently few at the base of each of the lower spikelets, often scarcely any, one or two occasionally in the centre or upper part of them; more numerous in the terminal and subterminal spikelets, which are sometimes wholly staminate or nearly so. *Anthers* bearded or spinulose at the tips. *Styles* two, long and tapering. *Perigynes* substipitate, nearly erect (not spreading), ovate-lanceolate, tapering (not rounded) at base, plane in front, slightly convex at the back, with several prominent ribs; mostly about as long or longer than the glumes, gradually narrowed into the green, rough-edged, rather deeply cloven beak. *Nut* broadly ovate or ovate-elliptical, much compressed, smooth, tapering into a short cylindrical point, on which the persistent style is apparently articulated; seldom, it would seem from Kunze's observations and my own, perfected.

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* In C. remota the culm is quite smooth, or very slightly rough only to the lowermost bract, the rachis only of the spike being scabrous, as is truly remarked by Goodenough.

† One of the angles is often smooth, and so obtuse and indistinct as very nearly to render the rachis ancipital.

‡ The comparison is here all along made with C. remota, and not with C. axillaris, under the impression that the latter was the plant before me whilst drawing up the description.

The foregoing description will enable any one to judge in what respects C. Boenninghauseniana differs from C. axillaris, from which I feel myself at present quite incompetent to disentangle it in figures, description or dried specimens. The plant pronounced to be C. Boenninghauseniana, from Quarr Copse, and described above, has to my eyes little or no resemblance to C. paniculata, if we except its densely cespitose habits of growth, but the figure in E. B. Suppl., and a plant in St. John's garden at Ryde, from Mr. Borrer (from the original Hertfordshire station, if I mistake not), do in the darkness of the glumes and disposition of the spikelets bear some resemblance to C. paniculata, whilst the Isle-of-Wight plant agrees well with the figures of Kunze and the 'Flora Danica' in the paler, more tawny hue of the glumes, and shorter, broader, less spreading spikelets.

Carex axillaris. In similar localities with the last, also in damp hedgerows, moist copses and marshy places, but rarely, nor am I at all certain that some of the few subjoined stations may not belong rather to C. Boenninghauseniana. First found by me on the margin of a little pool in Apley Wood, by Ryde, May 28, 1837. In Church Lane, Binstead, under the boundary fence of Quarr Copse, June 18, 1843, with C. remota, its very frequent companion. In tolerable plenty in the Parsonage Lynch, Newchurch, also with C. remota, July, 1843. Damp spot in Saltern Copse at Norton, Freshwater, June, 1849. A large tuft of this or the last species by the stream just above the mill at Sheet, near Petersfield, Aug. 19, 1849. How far all these stations belong to C. axillaris I feel quite unable to decide, even from the dried specimens before me, it being as well to confess the truth, that the slight distinctions between C. axillaris and Boenninghauseniana which I once thought I perceived and understood, have vanished on renewed examination, after some years' neglectfulness of the subject.

Carex remota. In wet or boggy woods, thickets, and under damp hedges, &c.; frequent in the Isle of Wight, and I think not less so in the county at large. Common about Ryde, in Quarr Copse, and in the lane that intersects the Newport road between Binstead and Ninham (Binstead Cross), along with C. divulsa. New Copse, near Wootton Bridge. Yarbridge, particularly about the swampy pools in Marshcombe Copse, very plentifully, as it is also in a boggy copse close to Prestwood, near Ryde. Abundant in Cleveland Wood, Appuldurcombe, and various other parts of the island. By the roadside just out of Christchurch, towards Sopley, in plenty along the right hand hedge for a considerable distance. Titchfield road, Puxol Lane (with C. divulsa), Mr. W. L. Notcutt. Noticed by me in various parts of mainland Hants, but the species is of too general occurrence to make a further enumeration of stations necessary. Sometimes covering the soft, black mud (humus) in our deep, boggy woods with its dense, spreading tufts. Culms much less triangular than in its near allies, the two preceding species, one angle chiefly being prominent, the others rounded off or nearly obsolete; smooth, except quite close to the summit.

C. elongata may be expected to occur in Hants; it has been found copiously in one station, if not more, in Surrey, although principally distributed in the midland counties of England.

Carex stellulata. In boggy, marshy places, wet woods, meadows, and on moory, heathy ground; very frequent over the entire county. Abundant on the skirts of Lake and Blackpan Commons, and elsewhere near Sandown. Plentiful in New Copse, near Wootton, and on Bleak Down. Abundant in boggy meadows about the Wilderness, Rookley Moors, &c., and equally frequent on the mainland.

Carex curta. In bogs and marshes, sides of pools, ditches, &c.; apparently very rare in Hants, and known to me as yet only in the Isle of Wight. Observed to be extremely abundant almost everywhere in Rookley Moors and about the Wilderness, where I had previously detected it in more limited quantity, June 17, 1844.

Carex ovalis. One of the more frequent species of Carex in this island and county, over which it seems very generally, though not copiously, dispersed in boggy, marshy places, damp meadows, on wet heaths, commons and pastures. On Stopler's Heath, by Newport. Ashey Common. Heathy ground between Quarr and Ninham. Easton Marsh, Freshwater. Frequent in many parts of Sandown Level, and abundant on the boggy parts of Lake Common. Plentiful in moory ground between Perreton and Horringford, and profusely in moist pastures about Rookley Farm and the Wilderness, 1842. In meadows near Newchurch, towards Haseley. On Bleak Down, in several places, and elsewhere in the island. On Gurnet Common, and by the Medina above E. Cowes, Miss G. E. Kilderbee. Met with by me so frequently in mainland Hants that I have neglected noting down special localities. By Durley Wood, near Bishop's Waltham. Frequent at Fisher's Pond, between Twyford and Bishop's Stoke, and various other places. Fareham Common, Mr. W. L. Notcutt.

Carex vulgaris (C. Goodenovii, *Gay.*, C. cæspitosa, *Sm.*). Not unfrequent in wet meadows, sides of ditches, ponds and other swampy or boggy places in the Isle of Wight, and possibly equally dispersed over the county, although I have no locality to cite for this most variable species on the mainland. In Sandown marshes. In a boggy meadow at the upper extremity of Brading Harbour, plentifully. In Alverston Lynch, and between Newchurch and Alverston, frequent. Bog at Cockleton, Miss G. E. Kilderbee!!! Var. β. Leaves extremely narrow; in Sandown Level, on the skirts of Lake or Blackpan Commons, and elsewhere. Var. γ. Pistillate spikes small, much abbreviated, ovoid-oblong, pointed, perigynes very dark and broad; marshy meadow at Freshwater Gate, June 17, 1841. Remarkable for the very short and broad spikes and the dark colour of the perigynes, which are scarcely distinguishable from the glumes in the dried state.

C. stricta (*Gooden.*) I suspect grows in several places in mainland Hants, and perhaps in the Isle of Wight. I am inclined to believe having noticed it abundantly in water-meadow ditches near Bishop's Stoke and elsewhere, but to have passed it by for a tall form of the last, or for the following, to both of which it seems to be nearly, perhaps too closely, allied, and is one of those species I find difficult to understand and recognize when I meet with them. I find a plant in my herbarium marked C. stricta, with a query, gathered in a little bog near St. Catherine's Point, June 11, 1839, but on a renewed examination am disposed to consider it as belonging to the preceding or the following species.

Carex acuta. In exactly similar places with the two foregoing, but quite rare in the Isle of Wight, and to myself equally so on the mainland of the county. In several meadows in Sandown marshes, abundantly; the last meadow but one on the right before coming to the village is full of it. By the Titchfield River, below the town, June, 1849, where it had been previously remarked by Mr. Notcutt. It doubtless grows in many other parts of the county, but I think can hardly be a frequent species with us, unless it has been overlooked by me for some of the larger states of C. vulgaris. In Sandown Level the glumes of the staminate spikes are sometimes of a pale reddish brown, or almost fawn-coloured. Var. β. Leaves extremely narrow and erect; perigynes ovate, acute, much longer than the very obtuse glumes. Foot of Alverston Lynch, May 21, 1842. Comes very near the description of C. Gibsoni, *Bab.*, but twice as tall. Yet the plant here is, I am convinced, a mere form of C. acuta.

Carex flava. By no means uncommon in boggy meadows, and wet, moory, heathy pastures, both in the island and on the mainland. Between Quarr and Ninham, near Ryde. On the marshy skirts of Lake and Blackpan Commons. Bog at Cockleton, near West Cowes. On a piece of wet land close to Little Duxmore Farm, in plenty. Abundant on the boggy parts of Colwell Heath, and elsewhere in the Isle of Wight, rather frequent. In the New Forest and various parts of mainland Hants of general occurrence. Var. β. *Œderi*, C. Œderi, *Ehrh.* Equally frequent, I should say, with the type. About Ryde, near Fishbourne, and Ninham Farm. Near Thorley. New Copse, near Wootton Bridge. Most profusely in moory meadows near the Grange Farm, Alverstoke (Gomer Pond), 1849. Now very generally and properly considered a mere, and not very constant, form of C. flava. The E. B. figure of C. flava is, Dr. Boott informs me, the variety *lepidocarpa*, and that of Host (Gram. Aust. i. p. 48, t. 63) resembles, in its tall, slender habit and very small perigynes, a plant I have received from Dr. Boott, under the name of C. Œderi, from the Falls of Niagara, and which Dr. B. is inclined to consider distinct from the European plant so denominated.

Carex fulva. Var. *β. speirostachya*, Wahlenb. (fide Boott), C. Hornschuchiana, *Hoppe*. In damp or marshy meadows and pastures, as well brackish as fresh, in several parts of the county, often in great plenty, and mostly on or towards the coast. In the Isle of Wight chiefly found in West Medina, particularly in Freshwater, in some parts of which it abounds, as in the marsh meadows at Easton, and on the boggy ground at the upper end of Colwell Heath, towards Weston, plentifully. Observed elsewhere in damp meadows about Colwell, and in a meadow at Norton. Near Briddlesford Heath, June, 1841, the only station in East Medina I find amongst my notes. In profuse abundance in a salt-marsh meadow, amongst other coarse herbage, on the station for Polypogon monspeliensis, opposite Farlington Church, near Havant, July, 1849. Meadow near Winton, July, 1850. Marsh meadows near Bishop's Stoke.

Are not C. fulva and C. distans simply forms of one and the same species? The differences when fairly weighed are very slight. Both inhabit the sea coast or inland places, fresh or salt-marsh ground, indifferently. The chief differences I find to distinguish C. distans from C. fulva, are the usually more numerous and crowded and nearly erect (not, as in C. fulva, patent or spreading) perigynes, hence the more elongated shape of the pistillate spikes; the greater smoothness of the culms at top, that are nearly devoid of roughness; in the less pointed glumes, destitute of a pale, membranous edging; in the somewhat shorter beak; and larger and differently shaped nut, which is rather ovoid-oblong than turbinate, more attenuated at each end, with sharper angles. Good full-length figures of C. fulva and distans are seen in Fl. Dan. t. 1049, 2043, 4 and 5.

Carex distans. In muddy or marshy ground near the sea; rare, or at all events much less frequent than C. fulva in this county and island, nor am I quite sure that some of the earlier noted of the subjoined stations do not belong to the latter. On a piece of moist ground near the shore in Gurnet Bay. In a creek of the Medina by Medham brick-field, 1840. Abundant at Freshwater Gate, especially in the second meadow from the shore (probably C. fulva). Plentifully on the beach where a small stream discharges itself into the sea, about half a mile west of St. Catherine's Point, June 1, 1842. Plentiful in a damp meadow nearly in the line between Tapnel and Wilmingham Farms, July 7, 1844. In the bog at the source of the Yar (Easton Marsh), Mr. Dawson Turner in Snookes's Fl. Vect. !!! (probably only C. fulva). I have no mainland locality to give for C. distans at present, although the likelihood of its growing on the opposite coast of Hants can hardly admit of question.

C. punctata should be looked for in the county, but judging from the characters of the species as described in books, it must require a more than ordinarily acute eye to detect it growing, since even description fails to make the distinction between it and the two foregoing species very intelligible.

Carex extensa. In muddy salt marshes and meadows by the sea, on several parts of the coast of the Isle of Wight and mainland Hants. Shores of the Wootton River. Moist, sandy ground amongst rushes on St. Helen's Spit, in some plenty. Frequent along the Yar between Norton and Freshwater, particularly amongst reeds at the edge of a copse on the east bank, a few hundred yards below the mill and near a cottage, with Œnanthe Lachenalii. Picked in a meadow near Farlington. Between Emsworth and Langston. Creek of the Beaulieu River, a little above Upper Exbury brickyard, in plenty, Aug. 28, 1850; fruit only then ripe in part, being much later in coming to maturity than in any species I am acquainted with.* Cams shore; the Salterns (Fareham), Mr. W. L. Notcutt! There are two excellent figures of this species in Host's 'Graminæ Austriaca,' i. t. 73, and 'Flora Danica,' x. t. 1709. Both these works are deserving of more frequent quotation and reference by British botanists than heretofore, for the excellence and fidelity of the plates, which exhibit in most cases full-length portraits of the tribes we are now speaking of.

Carex pallescens. In marshy (scarcely in boggy ?) places; usually with us in damp or even dry woods and thickets, but by no means frequent, either in the Isle of Wight or on mainland Hants. New Copse, between Ryde and Wootton Bridge, pretty plentiful in the drier and more open parts. Abundantly in Dunnage Copse, not far from Briddlesford Farm, June 4, 1841. Stroud Wood, between

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* I have indeed gathered it at St. Helen's with *nearly* ripe fruit as early as July 21, but the perigynes of most, if not all, our other Hampshire Carices have fallen off by that time, or are ready to do so, whilst those of C. extensa are persistent on the spikes till the close of September, and perhaps later, although the flowering season (June) is but little behind that of C. flava and its other allies.

Aldermoor Mill and Coppid Hall. A few specimens found in a wood near Apley, by Ryde, June, 1845, Mr. Thos. Meehan !! In a damp wood in Heckfield Park, near Odiham (the Rt. Hon. Chas. Shaw Lefevre's). Near Alton, in Carter's Copse, by Rotherfield Park, and picked in Chawton Park. A pretty, delicate Carex, apparently more frequent in the north of England and Scotland than in these southern parts of the kingdom.

Carex binervis. In dry or even boggy woods, and on heaths and barren, turfy moors, not uncommon. Plentiful in New Copse, between Ryde and Wootton. Common in the dell known as Tinker's Hole, at Apse Castle. On Briddlesford Heath. Plentiful on Bleak Down. Bog at Blackpan, Dr. T. Bell Salter, 1844! Abundantly on Titchfield Common, and elsewhere remarked in the county, where it is certainly not rare on the moors and heaths. Near Hill Head, Mr. W. L. Notcutt. Closely allied to the following, between which and C. distans it is in some degree intermediate, though abundantly distinct from either.

Carex lævigatu. In boggy or marshy places, wet woods, thickets, copses, meadows and pastures; never, I think, like the last, on very dry ground.* In very many places in the Isle of Wight. On a little piece of boggy ground by the road-side a few hundred yards before coming to Ninham Farm from Ryde, and in a boggy copse close to Prestwood. Very common in several parts of Sandown Level, and in moist woods and pastures between Apse and Ninham Farms (near Shanklin), also in Apse Heath withy-bed, and in a low, marshy spot at Apse Castle. New Copse, near Wootton Bridge, in very great abundance. Common about Calborne Mill, and between it and Newbridge. Briddlesford Copse, abundantly. Extremely common in damp, boggy woods about Newchurch, as in the Parsonage Lynch, Alverston Lynch, wet parts of Bordwood Copse, &c., abundantly. In a marshy wood within half a mile of Combley Farm to the southwest, and on a piece of marshy land close to Little Duxmore. In great plenty in a marshy slip of ground just beyond the northern end of the willow-bed east of Bagwich Farm. Wood between Ryde and Newport, Mr. Dawson Turner in Snookes's Fl. Vect. On the mainland it is perhaps not less generally distributed. In considerable plenty on a low, damp part of Heckfield Park, near Odiham. Extremely abundant in Cranbury Park woods. Between Alton and Chawton Park, Mr. J. Woods, jun., in Bot. Guide. A handsome sedge, nearly allied to C. binervis, but very distinct by the lanceolate, not ovate, and mucronate glumes, longer pistillate spikes, paler and more spreading perigynes and glumes, tawny or fulvous colour of the staminate spike, and by the greatly shorter and broader leaves, of a paler green. The nut I find precisely the same in both. I have observed C. lævigata near Ryde subdiœcious, by the total suppression of the usual pistillate spikes beneath the solitary terminal staminate one. The anthers in this and binervis are spinulose at the tips, most conspicuously so in the latter.

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* C. binervis and lævigata are often found growing together in this island, the latter most abundantly in very wet, the former in drier situations, on heaths, &c., but like its congener, C. binervis may be successfully sought for in the wettest thicket or morass, and lævigata in comparatively dry places. In their flowering time there is a considerable difference, C. binervis being for the most part far advanced before C. lævigata begins to bloom, which is commonly not till the latter end of May, whereas the other is seen in flower early in that month, or even at the close of April. This difference in the flowering time is inherent, and not dependent on situation, since the same order is observed by the two plants when growing together under precisely similar circumstances.

Carex panicea. In marshy or boggy ground, on damp heaths, moors and pastures; very frequent over the Isle of Wight and rest of the county. Var. β. Perigynes more oblong, or elliptical and pointed. On the bog upon Colwell Heath, Freshwater, July 9, 1844. The rare C. depauperata, found near Godalming, in the contiguous county of Surrey, where, guided by Mr. Salmon, I have gathered fine specimens a few years back, may fairly be hoped for as an accession to the Hants flora, through some diligent plant-hunter of a future day. Don's alleged Forfarshire station is probably erroneous for a species so decidedly southern as this.

The pretty and mostly north-country C. limosa, I by no means despair of adding eventually to our Hampshire list of sedges.

Carex strigosa. In damp, wet or boggy woods, groves, thickets and copses, but not common, either in the Isle of Wight or on the mainland. In St. John's Wood, close to Ryde, but sparingly, May 31, 1840. In the wood (Monkton Mead Wood?) nearest to the sea skirting the marsh meadows behind Ryde Dover, abundantly, 1843.*

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* This wood is, I believe, one of the three stations in the Isle of Wight for the very rare and curious Clathrus cancellatus, which has lately been found by Mrs. Griffith at Torquay, in Devonshire. The discovery of the Clathrus has been attributed in a most beautiful work on British Fungi, still in course of publication, by a lady, to the author of these notes, but the real discoverer was Mr. Kippist, librarian to the Linnean Society, as that gentleman detected it at Ryde, in the above wood, about the same time that my attention was called to it at Old Park, by the gardener there, again observed by myself shortly afterwards in the Pelham woods, near

Profusely at the north end of Smallbrook Heath Copse, on the left side of Rosemary Lane going towards Aldermoor Heath, where it quite covers the ground by a plash or pool in the copse, requiring a damper soil than C. sylvatica, June, 1844. Abundantly in a moist copse a little south-west of Combley Farm, May, 1844. In a wood between Swainston and Five Houses, but not remarked in any great plenty, being confined to one spot only, June, 1845. Picked in the woods at Cranbury Park, near Winton, July, 1850. By the roadside just before coming to the bridge across the brook at the entrance to Sidmonton Common from Newtown (near Newbury), and in great abundance in a moist copse close to the said bridge, on the right hand, growing along the side of the stream and a path through the copse, June 3, 1850. Combe Wood, near Selborne, in one part rather abundantly, June 17, 1850. Hill Copse, near Placehouse (Fareham), Mr. W. L. Notcutt! Much resembling the following, but in addition to many and well-known marks of distinction, differs from C. sylvatica in having a hollow, not solid, stem, deciduous, not, as in that, persistent, styles, and very much broader leaves. Pistillate spikes sometimes compound at the base with us.

Carex sylvatica. One of the commonest and most universal species of the genus, to be found in almost every moist wood, copse, grove and thicket in the county and island. Affects less moist and shady places than the last. Midrib of all the glumes spinose. This is not the species Linneus had in view when he tells us, in the 'Flora Lapponica,' the Laplanders employ a carded and dressed plant of this genus as a protection to the feet against the cold of their climate, but C. vesicaria, as is quite plain by his reference to the above work, under that species, in his 'Flora Suecica,' 2nd edit. p. 333 (β. Carex culmo longissimo spicis tenuibus remotis, *Fl. Lapp.* 328). Our C. sylvatica inhabits only the most southerly provinces of Sweden, and is a perfect stranger to Arctic Europe, and of course to Lapland.

Carex pendula. In moist or even boggy woods, groves, thickets,

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St. Lawrence, from whence I sent young plants, through Mr. Gray, of the British Museum, to the Rev. M. J. Berkeley. If the mere noticing a species in ignorance of its nature and rarity can be called a discovery, then the gardener above mentioned has a prior claim over myself to the merit of first detecting it as British; but Mr. Kippist not merely noticed it independently of us both, but recognized it as a known and described species, though new to Britain; it is to him, therefore, that the true merit of discovering Calthrus cancellatus in England belongs.

marshy sides of rivers, &c., also on wet, slipped land along the coast. Not rare in the Isle of Wight. About Ryde, in Marina Wood, by Apley, and in woods at the mouth of the Wootton River, on the west shore (profusely in the boggy parts of Chapel Corner Copse). Abundant in various places about Shanklin, as in the Chine, and in the ravine along the stream below the church, and under the garden of the Shanklin (late Williams's, now Hale's) Hotel. Plentiful in Great Copse, about half a mile out of Shanklin on the road to Ventnor, and frequent in Hungerberry Copse. About Cowes, as in woods at Norris Castle, and especially in Buckett's Copse, on her Majesty's estate at Osborne, in the utmost profusion; frequent also along the shore near West Cowes, towards Gurnet Bay. Abundant in copses between Gurnet and Thorness Bay. At Sheat Farm, near the Medina below Newport, in great profusion. Less frequent, it would seem, in mainland Hants. Most abundantly in a moist part of Durley Wood, near Bishop's Waltham, near the fine trout stream that flows in front of Calcot Farm. In a wet place below St. Cross, by Winton, to the westward of the mill, May, 1849. Gill Copse (Fareham), Mr. W. L. Notcutt. The largest Carex in Europe, if not in the world, often rising with us to six feet, and highly ornamental from its spreading tufts of fine, broad root-leaves, long, slender, elegantly drooping pistillate, and nodding, club-shaped staminate spikes. Always begins flowering in this county soon after the middle of April.

Carex Pseudo-Cyperus. In wet, swampy places, woods, thickets, pools, ditches, river-sides, &c.; not very common in the Isle of Wight. A single tuft in Quarr Copse, June, 1844. Between Brading and Sandown, in marsh ditches between Yarbridge and Yaverland, under Marshcombe Copse, in some plenty; also in ditches nearly at the back of Lower Morton Farm. Boggy spots by the little stream that descends to the sea between Niton and Blackgang, in some abundance, particularly in a swampy tract of ground partly enclosed by a stone fence near the shore, in great plenty, growing in large tufts, June, 1841. Picked in a pond between Wootton Bridge and King's Quay (one specimen only). In one or two places in the marsh at Easton, Freshwater Gate (perhaps destroyed by draining). Wood near Smallbrook Farm, about a mile from Ryde, Rev. G. E. Smith, 1838 !!! Picked at Christchurch, on the road to Sopley. Ditch-bank by the canal about a mile from Romsey, towards Timsbury, in some plenty, and on peat in a meadow not far from the same locality. In enormous quantity in ditches of the meadows adjacent to Broadland's Park (Lord Palmerston's), by Romsey, on the west side, quite filling them in some places, June, 1850. In a lane between Cove and Hillmore Farm, near Farnborough, in some plenty. Abundant in a pool about a mile from Upper Exbury, on the road to Beaulieu. I have picked it in the heart of the New Forest, and in other parts of the county, where this most graceful species is very widely distributed.

Carex præcox. Frequent on heaths, and in dry, turfy meadows, pastures, open woods, &c., throughout the county and island.

C. montana, *Schk.* (not of Linn. according to Sm.), C. collina, *Willd.* (see. Hook. and Arn. Br. Fl. 6th edit.), which has lately been discovered in Sussex by Mr. W. Mitten, should be looked for in Hampshire.

Carex pilulifera. In marshy, moory or boggy ground, on damp heaths, and in moist woods, &c.; not uncommon, and from its small size less often observed than overlooked. Plentiful in New Copse, between Ryde and Wootton Bridge. Common at Apse Castle, on the turf walks. On Lake Common, &c. I happen to have no memoranda of localities for this species on the mainland, where I have repeatedly met with it, and am certain of its being not at all unfrequent in that part of the county.

The very rare C. tomentosa of the adjoining county of Wilts, its only known British station being at Merston Measy, where it has been gathered in plenty of late years by Mr. Borrer and Mr. Flower, may be eventually found within the limits of this flora. With far greater probability may C. clandestina be expected with us, as it grows in quantities on the high chalk downs stretching eastward from Salisbury, towards the Hampshire border, as I am informed by Mr. J. Hussey, who showed it to me last May in the vicinity of that city, growing in patches, distinguished by their pale green colour from the surrounding short herbage of the downs. The neighbourhood of Breamore and Rockbourne, to the north of Fordingbridge, is the most likely to produce this rare and remarkable species.

Carex glauca (C. recurva, *Huds.*). In woods, meadows, pastures, along hedges, road-sides, on heaths and commons, in bogs and marshes; the most abundant and universal, as well as most variable in aspect, of all our sedges. In two specimens of C. glauca, I found on the summit of one of their pistillate spikes, in the first a diandrous floret, each of whose filaments was tipped with a *double* erect anther; on the other spike was a monandrous floret, with the filament cleft, and bearing a *single* erect anther on each fork. It is singular that this very common European Carex, which does not appear to be at all rare in Sweden, should yet have been overlooked and left undescribed by Linneus. C. filiformis, frequent in the bogs of the north of England and Scotland, may nevertheless occur in Hants.

Carex hirta. In moist woods, meadows, pastures, by ditches, pools and other wet or boggy places; frequent both in the Isle of Wight and county at large. About Ryde, not uncommonly. Sandown marshes. In the Cyperus meadow at Ape's Down, abundantly. Common along the stream from Calbourne to Newbridge, and in moist meadows about Newchurch. Easton Marsh. Meadows between French Mill and Bobberston. Meadow at Yarbridge, abundantly. At Bonchurch, Steephill (on the edge of the little pond by the pheasantry), &c. Banks in Totland Bay, Mr. W. D. Snooke in Fl. Vect. By Alresford Great Pond, and noticed by me in very many parts of the county. Road between the tunnel and Cattisfield (Fareham), Mr. W. L. Notcutt. A variety with the pistillate spikes compound at base, I found, June 10, 1840, by the stream-side just above Calbourne Mill.

Carex ampullacea. In ditches, ponds, drains, and swampy or boggy meadows; very frequent in mainland Hants, and by no means rare in the Isle of Wight. In Sandown Level, on the skirts of Lake and Blackpan Commons, in several places. Abundant in several ditches by Newchurch, at the foot of the Parsonage Lynch, &c., and by a drain on Apse Heath, close to the withy-bed. In several parts of the marsh at Easton. Abundant in various places along the valley of the Medina, below Newport, in the boggy meadows between Cridmore and Appleford, about the Wilderness between that and Rookley, &c. I find it so frequent in mainland Hants that I have neglected making notes of its localities lately. Bog on Titchfield Common. Abundant in Winnol water-meadows, at Winton. In the shallow part of Miller's Pond, by Botany Bay, near Southampton. Plentiful about Christchurch, Romsey, Ringwood, and in the swamps of the New Forest. At Forton and elsewhere about Andover, &c. The nearly-related C. vesicaria there can be little doubt inhabits this county, although it has hitherto eluded my endeavours to find it with us. I understand from Mr. W. W. Reeves, that it abounds near Farnham, which town is very close on the Hampshire boundary line, and Mr. R. thinks he has seen it on the side of this county. The greener, not glaucous, leaves, larger and very inflated perigynes, and much more acutely angled culms, will distinguish it from the broader leaved states of C. ampullacea, which I believe are sometimes mistaken for C. vesicaria. Nothing can be more variable indeed than the former as respects the breadth of the leaves, which are sometimes scarcely a line wide, in other examples three or four lines broad, whilst the degree of glaucescence is hardly less subject to variation.

Carex paludosa. In low, marshy, swampy meadows and pastures, in ditches, pools, by river sides, &c. Together with the next, an abundant species in the county, but not very common in the Isle of Wight. In a boggy spot on the western skirts of Lake Common, in plenty; also along marsh ditches by the road-side just before coming to Sandown village from Brading. Wet meadows a little above Alverston Mill, and along the side of the mill-stream, intermixed with the following, plentifully. Boggy meadows at Easton, Freshwater. Abundantly by the water courses just above Yafford Mill, and frequent in wet meadows about Brixton; abundant in the boggy meadows at Moor Town and all the way to Bottle Hole, in the wet willow thickets. At Steep Hill, in a moist meadow nearly opposite the stables and laundry, in plenty. More universal in mainland Hants, where it is of very common occurrence in most districts. Profusely in the great pond at Bishop's Waltham. Plentiful on Stoke Common, and about the pond at Old Alresford, &c. By Titchfield River, Mr. W. L. Notcutt.

Carex riparia. In exactly the same places with the last, and I think of about equal frequency on the mainland of Hants; less common perhaps than C. paludosa in the island. Abundant in the marsh ditches behind the Dover at Ryde, and in Centurion's Copse, near Brading.* Fringes the stream above Alverston Mill in great profusion and luxuriance. In most of the places given for C. paludosa on mainland Hants, as well as in innumerable others. Place House; Fontley (Fareham), Mr. W. L. Notcutt. Var. β. Spikes of either sex more attenuate (the pistillate especially), on extremely long, slender stalks, pendulous; staminate spikes for the most part solitary, terminal, drooping, bearing pistillate flowers in the middle. On a piece of very wet salt marsh under Chapel Corner Copse, at the mouth of the Wootton River, in plenty, May 22, 1846. This remarkable condition rather than variety of C. riparia, was sought by me unsuccessfully this summer; the plants on the station having assumed the normal appearance of the species, with but a slight tendency in one or two individuals to inordinate elongation of the peduncles.

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* It has been suggested to me that Centurion is a corruption of St. Tewin, a Saxon or perhaps British saint, and that therefore the latter is the proper orthography. Tradition gives this copse as the site of a French town in very early times, as Newtown certainly was (thence called Francheville in old records): may not the place now occupied by the copse in question have been dedicated to St. Ouen, the same personage as St. Tewin, and identical with the Welsh name of Owen?

Digitaria humifusa. In cultivated fields, in a sandy soil; very rare? Amongst corn (wheat and barley), potatoes, clover and turnips, on the sandy alluvial gravel on the north side of Christchurch, within a mile of the town, on the Wimborne road, in vast profusion, covering the soil in patches of large extent, as well as growing in a more scattered manner, Aug. 21, 1850. I traced the species, in quantity that was truly immense, from some allotment gardens in which it first caught my eyes, into all the neighbouring fields, in which, where the crop had been carried, I found the stubbles filled with it in flower. A farmer, seeing me gathering the grass, conducted me into his fields across the road, where it was equally prevalent; and further on I found part of a large potato-field in which the Digitaria formed a perfectly close, compact turf, like a grass lawn, to the absolute exclusion of every other plant, and concealment of the ground it grew upon. The species is well known to the farmers and their men, but has no distinctive name amongst them, being only held a kind of "poverty grass," that is, a grass indicative of an extremely poor soil. I have the best reason for believing that the Digitaria covers a far greater space of land than I had the opportunity of looking over, and that it will be found no very uncommon production of the alluvial sand or gravel which prevails throughout so large a tract of south-western Hants. It will likewise be detected probably in the sandy districts along our eastern or Surrey border, as between Farnborough and Petersfield, &c. The Digitaria was accompanied by Antirrhinum Orontium, a weed in every field and by the road-sides for miles round Christchurch, and in one place by Arnoseris pusilla, till then unknown to me as a plant of this county.

†*Echinocloa Crus-galli.* In waste and cultivated ground, also in low, moist situations, as sides of ditches, streams, &c.; extremely rare. "By a Rivolet side near Petersfield, Hampshire, Mr. Goodyer," Merrett, 'Pinax,' p. 56. I am not aware of any modern authority for this grass in the county, in which, however, it is quite as likely to grow as in any other of the southern and eastern ones. I have searched the sides of the stream that runs close by Petersfield, on the west of the town, having been led to suppose that it must have been the one intended by Goodyer, in consequence of the substitution of the definite for the indefinite article in copying Merrett's words into the Synopsis of Ray, from which last work the notice has been transcribed verbatim by the authors of the old 'Botanist's Guide,' and from them

by succeeding writers. But on turning to Merrett I perceive that he does not say *the*, but *a* rivulet, which leaves it very doubtful whether I searched in the right place after all, and gives ground for hope that this grass may yet be found in the neighbourhood.

Setaria viridis will, I feel confident, be detected hereafter in our sandy districts, with perhaps S. verticillata and glauca for its associates. The great rarity of the genera and species composing this tribe of Gramina (Paniceæ) is a remarkable feature in the English flora, seeing that most of them are amongst the commonest weeds of cultivated ground on the continent, under the parallels of the south and centre of England. Surrey seems to be the head-quarters of all the British panic-grasses, possessing more than perhaps any other county in its warm, dry, inland and easterly position, the climatic conditions in which this tribe of grass so eminently delights. Hence the species composing it fail totally in the west of England, in Wales, Scotland and Ireland, and I think are rarely found with us close to the sea. In an economical point of view, their absence from our fields is not to be regretted, as in most parts of the world, where the summers are very warm and dry, such harsh, worthless annuals as the various species of Panicum, Setaria, Cynodon, Digitaria, Paspalum, Cenchrus, &c., are miserable substitutes for the perennial, succulent meadow grasses of our own land, whose place they in a great measure usurp.

What may be the plant of Merrett (Pin. p. 56) intituled "*Gramen Paniceum* procumbens, seu chamæ paniceum palustre. In a lane, and watery places, and ditches near Petersfield"? Can it be Leersia oryzoides, a grass likely enough to grow there, and the culms of which are sometimes procumbent, or rather decumbent, when on damp ground and not immersed in the water, but the term "chamæ" seems to point at some species of smaller stature than that usually is.

Phalaris arundinacea. By the sides of rivers, ponds, pools and ditches; not unfrequent in the Isle of Wight, and extremely common and abundant in most parts of mainland Hants. In various parts of Sandown Level. By the Medina at Shide Bridge, Newport, abundantly. In the pond below Carisbrooke Castle, and abundant generally by mill streams and ponds at Newport and Carisbrooke. In the stream between Newbridge and Mill Green, near Shalfleet. Willow thicket between Messley Farm and Langbridge. By the stream-side at Yarbridge, and by the bridge at Alverston and elsewhere. So common on the mainland, and universally distributed, that I have not been at the trouble of marking localities.

P. canariensis (Canary grass) is occasionally found, a few plants here and there, on waste ground, manure heaps, &c., by fortuitous dispersion, but can hardly be called naturalized with us, and hence is not, any more than Buckwheat, a proper species for incorporation with the county flora.

Anthoxanthum odoratum. In meadows, pastures, woods, &c., especially in dry, heathy, sandy soils; plentiful over the entire county. Abundant at Apse Castle, &c. The culms have a hot taste when chewed, with a flavour of bitter almonds, and the fresh roots emit a powerful odour, less delicate perhaps than the fragrance of the herbage when drying, and which Swartz, in 'Svensk Botanik,' compares to the smell of the Tonquin bean; (Wickström, Stockh. Fl. p. 19, note).

Phleum asperum and P. Boehmeri, though very local, and not known to inhabit the counties contiguous to this, may nevertheless prove to be indigenous to Hants, and should be looked for in dry, open fields and pastures, on sand or chalk.

Phleum arenarium. On loose sand of the sea shore, but not common. On the sandy spit at Norton (by Yarmouth), Freshwater, in considerable plenty, June 21, 1846; already quite dried up by the great heat and long drought of the season, but since gathered there in perfection, in May, which is the proper flowering month of the species in this county. Along the South Beach, Hayling Island, in considerable abundance at intervals. Coast of Hants, Rev. G. E. Smith! Probably occurs on several other parts of the coast line, but flowering early, and soon withering, is from its colour, which comes very near that of the sand it grows upon, easily overlooked when in seed.

Phleum pratense. Abundant in most parts of the county and Isle of Wight, in meadows, pastures, borders of fields, &c., in high and dry, as well as in low, damp situations; common on the chalk, in the most arid exposures.

Alopecurus pratensis. In meadows, pastures and grassy places, by road-sides, &c., mostly in rich or somewhat moist soil; abundantly throughout the county.

Alopecurus geniculatus. Extremely common in and about shallow pools, ditches and plashy spots, likewise in moist meadows and pastures, in salt marshes, and even on dry ground. Var. *β.* Culms swollen, clavate or bulb-shaped at their base. With *α.* occasionally. On Ryde Dover and elsewhere. "Var. 2. Awns longer than the calyx; root bulbous; little fruit-stalks branched; sheaths wider than the thickness of the straw. *Awns* barely twice the length of the calyx. *Anthers* purple, changing to brown-yellow. Mr. Woodward thinks this different from the A. bulbosus, with an upright straw. On a bog at the source of the Yar; Freshwater Gate, Isle of Wight." (With. Arr. 3rd edit. ii. p. 120). I know not what this can be, but suspect it is only the following species. A. fulvus will probably be some day discovered in this county, but as distinct from the present I have great misgivings.

Alopecurus bulbosus. In salt-marsh meadows, also in dry pastures and waste ground near the sea, in several parts of the Isle of Wight. On Ryde Dover in great plenty not many years ago, but I doubt if it exists there now, that piece of ground being nearly built over, and the small part still left unoccupied by houses levelled and trodden down into a bed of loose sand, and traversed by roads and embankments.* It may, however, be found in the marsh meadows at the rear of the Dover, between it and the gas-works. Salt marshes between Bembridge and Brading, near the sluice, &c., abundantly. Between Yarmouth and Thorley, by the road-side near the bridge. Marshy spot by the road-side between Brading and Sandown, Aug. 1848, Mr. Borrer. On the lawn of Lord Spencer's house, Ryde, Dr. T. Bell Salter. I have no station to give for this species on the mainland of the county, but cannot doubt its existence there, believing, as I do, that A. bulbosus is of very common occurrence in most of our salt or brackish pastures in the island, but not distinguishable with the certainty required for botanical indication from A. geniculatus, without examination of the glumes in every instance. In our standard floras and hand-books the culms are described as erect; they may be so in many instances, but here at least I have always found them as Lloyd remarks them in Brittany, decumbent and geniculate. The plant is, in fact, with us perfectly depressed, forming tufts of a circular outline, and looking as if trodden flat, the root emitting numerous leafy culms, spreading in all directions, with bulb-shaped bases, the lower joints geniculate, and the part of the culm above these porrected horizontally to the very termination of the spike; never erect, but sometimes a little ascending. There is, indeed, nothing in the aspect, colour or mode of growth, so far as I can see, by which this species is distinguishable at sight from A. geniculatus, nor does A. bulbosus always grow in water, as Smith asserts, but often in dry or comparatively dry places. I cannot rid my mind of the impression that A. bulbosus and fulvus are but states, or perhaps permanent varieties, of A. geniculatus, much as I could wish to be convinced to the contrary by the many and able botanists who still keep them apart.

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* The existence of most of the interesting plants inhabiting the Dover at Ryde has become, within these four or five years, matter of history merely. I believe all or nearly the whole of the under-mentioned species are extinct or lingering their last on that once fertile spot to the botanist:—Trifolium striatum, scabrum, glomeratum, suffocatum, ornithopodioides, subterraneum (this last, and *possibly* a *few* specimens of the others, still survives on the little remaining turf), Mercurialis annua, Onopordon Acanthium, Gastridium lendigerum, Dianthus prolifer (now greatly circumscribed in space), Festuca uniglumis? Armoracia rusticana (Cochl. Armor.), Alopecurus bulbosus, and Datura Stramonium.

Alopecurus agrestis. In cultivated fields, amongst corn, clover and other crops; far too plentiful. Abundant in the Isle of Wight; extremely common about Ryde, Bembridge, Shanklin, Luccombe, Bonchurch, in corn-fields about Thorley, Wellow, Calbourne and most other places. Equally prevalent, I have reason to believe, on mainland Hants. Very common about Winton. Observed between Portsmouth and Petersfield, and in numerous other parts of the county. Fields by Gill Copse, &c. (Fareham), Mr. W. L. Notcutt. The corn-fields in many parts of the Isle of Wight are visibly tinged with the slender purple and green spikes of this most prolific and troublesome weed, the Black-grass of our farmers (Black-bent in some places), probably from its dark red colour. Flowering from April to November, the land is never free from it, but fortunately the species is confined chiefly to the southern parts of Britain, being rare and perhaps not indigenous to Scotland, and as yet quite unknown to Ireland. Here it is amongst the worst weeds we have, and although so near akin to one of our best pasture grasses (A. pratensis), I am not sure that cattle will touch it. Possibly the clover crops infested with it may not be injured by the admixture, when made into hay at least.

The rare and curious little Knappia agrostidea is not an unlikely plant to be detected eventually in our sandy (and especially maritime pastures. It is not, however, essentially a sea-side grass, being found far inland on the continent, and is included in the floras of Paris, and various parts of Germany. Its extreme minuteness, and great precocity and brief duration, veil it no doubt from the eye of the observer in many places.

Gastridium lendigerum. By way-sides, in waste places, dry, rough pastures and cultivated fields, amongst corn, clover, &c., also (but more rarely) in woods and copses; extremely frequent in the southern part of the county, on or near the coast; not found, so far as I am aware, in the central and northern districts, or at any considerable distance inland, and varying in abundance in different years, being, moreover, very fugitive and capricious in its localities. Quite frequent, and in many seasons abundant even to profusion, over the greater part of the

Isle of Wight, seldom, if ever, I think, scarce at any time with us, but constantly becoming so on former, and appearing in new, stations. Its habitats are so numerous, and at the same time so little to be depended upon for permanence, that a particular mention of many of them would be superfluous. About Ryde in most years, common. On the Dover (at least formerly), about Quarr Abbey and Fishbourne, at St. Helen's, Sea View, and various other places. Woods on the west side of the Wootton River, July, 1845. Fields and woods along the new road from Wootton Bridge to King's Quay, in abundance, Aug. 1848. Very abundantly on the waste building-lots at East Cowes Park, June, 1846, and common generally around Cowes, in corn-fields, &c., also about Newport, at Garrett's, &c. A perfect weed in corn-fields sometimes, about Yarmouth, Thorley, and in Freshwater parish, both in the standing wheat and on the stubbles after harvest, which are often quite overrun with it till late into autumn. Not particular as to soil, but I think more prevalent on the chalk and clays of the tertiary deposit than on the greensand, and in low more than in upland fields. The species here is as truly sylvestral as agrestal or viatical. If not so common along the coast of mainland Hants as in this island, it is at least no rarity there. In Hayling Island, not unfrequent. Near Boldre, Lymington, &c. Fields near Blackbrook; Maindell (Fareham), Mr. W. L. Notcutt. One of the most beautiful and elegant of European grasses, the pale green, spear-shaped panicle, shining with a silvery lustre, the dense tufts of erect or spreading culms, often eighteen or twenty inches in height, making a conspicuous appearance in our wheat-fields, where the plant may be found in flower from June to October. The figures of G. lendigerum in all our illustrated works on British botany are for the most part below mediocrity. That of E. B. is very indifferent; those of Knapp and Parnell poor and meagre in the extreme; the one in Baxter's 'British Flowering Plants' (done from Ryde specimens) is much superior, but still wanting in some points.

Polypogon monspeliensis. In brackish pastures, and muddy salt-marsh land, in and on the edges of salt-water or brackish ditches and swamps, also (but not with us) in dry, sandy pastures and waste places near the sea; rare. Not yet detected in the Isle of Wight. Known ever since the time of Lobel to inhabit this county, but first found by myself, growing in considerable abundance, July, 1848, partly in damp, and partly in very wet, salt-marsh ground near some long-since abandoned salt-works on the north-east side of the point of land projecting into Langston Harbour, about half a mile due south, nearly from Farlington Church, scattered over a considerable extent of salt marsh. I again fell in with it abundantly in a swampy spot close to a stagnant pool at the farther end of a large grass-field a little way out of Porchester, along with the following species, July 14, 1849.* Mr. L. H. Jacob, of Landport, Portsea Island, lately in the excise, but now retired, who possesses a considerable knowledge of British plants, and has botanized the mountains of Forfarshire with Mr. Gardiner, assures me that P. monspeliensis grows in several parts of Portsea Island, and particularly in a lane leading up from a place called the Salterns, or the rough Salterns (now abandoned) to a farm (Tangier Farm ?) on the east side of the island, along with P. littoralis; and further, that P. monspeliensis grows in the north-west parts of Portsea Island, near Hillsea Barracks and elsewhere.† First discovered in Hants, according to Lobel,‡ by the Rev. Richard Garth, in wet, grassy places (*riguis herbidis*) near salt-works and old houses, called Drayton, two miles from Portsmouth. If the distance be here given correctly, the place called Drayton, on the road between Cosham and Havant, the only one I know of bearing the name, cannot be the station alluded to by Lobel, because it is six miles, or thrice the alleged distance, from Portsmouth that Lobel's habitat is said by him to be; besides which, I could find neither the Polypogon nor the remains of salt-works any nearer to the Drayton of our day than Farlington, which is barely near enough the former to make it possible that Lobel's and my own station are the same, setting aside the difficulty about the distance, which is not so easily got over. I suspect, therefore, that there is, or was, some other place called Drayton, much nearer to Portsmouth, and that Lobel's station is one of many Portsea-Island localities for Polypogon monspeliensis mentioned to me by Mr. Jacob. Var. *α. major*, Kunth. Panicle lobed; culm repent at the base; setæ very long. P. polysetus, *Steud.* Near Porchester, Dr. Macreight (in his Man. of Brit. Bot.); probably the same station as that given above. Var. *β. minor*. Panicle short, densely spiked; culm rarely repent at base; setæ short. Salt-works near Portsmouth, *Id.*; probably one of Mr. Jacob's stations before alluded to on Portsea Island. I find no other difference but in size between these two varieties, the larger growing in the wetter, the smaller in the drier places; the former rising to the height of four feet, with culms like reeds for thickness, and perfectly erect, except at base, bearing a panicle from four to five and a half inches in length; the latter forming tufts, with numerous culms, from a foot or less to about eighteen inches long, decumbent below, and spreading or partly erect; panicle much smaller, two to three inches long. I have never seen English specimens from other counties at all approaching the gigantic size of the Hampshire plants at Porchester and Farlington, but Mr. H. C. Watson has received examples as large from the Azores.* About Montpellier, from whence the species has its specific name, it is very common in arid, sandy places, and I have also collected it in the loose sand on Sullivan's Island, opposite Charleston, S. C., in June, 1847, where it has become naturalized, but in both places much smaller than with us. It is a singular fact, that the same plant which in the south of France is an inhabitant of the driest sands, should in England be found only in muddy salt marshes, a situation I do not recollect to have seen it in at Montpellier, nor have I heard of any instance in which this species has been noticed on sand in this country. Here P. monspeliensis is truly a noble grass, with its broad leaves and exquisitely soft, silky, compact, spear-shaped panicle, emulating many of its order native to the torrid zone. Few of the figures given by British authors do justice to this elegant species; that of E. B. is very bad; that of Knapp equally so, if not worse; Parnell's much better, but not first rate; Mr. Curtis's in Brit. Entom. xvi. t. 767, nearly all that can be wished, as far as the only portion of the plant represented is concerned.

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* The following directions will enable botanists to find our two Polypogons with facility. To arrive at the first station for P. monspeliensis, turn down the lane leading from the high road (Portsmouth and Chichester) to the Farlington water-works; cross the railway by the gate a little to the south of the works, and being now on the marshes, keep about due east, till you come opposite Farlington Church, you will find the plant in various places, but chiefly in and near a strip of very wet ground, covered with Scirpus maritimus and other salt-marsh species, amongst which the taller variety, *a*., rises very conspicuously. To reach the second station, including the one for P. littoralis, proceed a few hundred yards out of Porchester, on the road to Havant; opposite a farm standing close by the road-side, a gate opens into the meadow in question, at the farther or south end of which is a line of salt pools, communicating with the tide in Portsmouth Harbour, and situated about half a mile, a little west of north, from Porchester Castle; in the westernmost of these pools both the Polypogons will be found growing in company. The meadow is further remarkable for a spring of the finest water, which rises through the brackish soil.

† Mr. H. Bull, of Portsmouth, in a letter to me, confirms the existence of both the Polypogons in Portsea Island, and since then I have received, from Mr. Jacob, specimens of each from the same island, with a notice of three stations for P. monspeliensis, in addition to those mentioned before, *viz*., High Grove Field; lines at Hillsea, near the highroad; and Nine Acres, opposite Horsey Island.

‡ 'Adversaria altera pars.' p. 469.

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* The great size of the Hampshire plant did not escape the observation of Lobel in the 'Adversaria' before quoted.

Polypogon littoralis. In brackish or salt-water swamps, pools and ditches; very rare. Most profusely, with the last, in a swampy pool in the meadow near Porchester, before described, October, 1848. In Portsea Island, Mr. L. H. Jacob ! A grass with very much the habit and appearance of Agrostis alba, but far larger and handsomer, yet liable, when out of flower, to be mistaken for an awned variety of that species, as indeed happened to myself, I having sent a specimen as such to Mr. H. C. Watson, with a query, in the autumn of 1848, to which he replied, "Is not your plant rather P. littoralis ?" which, indeed, it was. In the Porchester station it grows associated with P. monspeliensis (its companion in most of its other known localities), Agrostis alba (the procumbent form), Scirpus maritimus and other salt-marsh plants, but exceeds them all in quantity, absolutely filling up the pool with its decumbent stems, so as to enable one to walk in amongst it, without sinking in the muddy water more than ankle deep. Here again, as with P. monspeliensis, the species appears greatly to exceed the usual size it attains in the few remaining English habitats. Many of the culms I measured were six feet in length, and the panicles eight and nine inches quite commonly. These last, especially in their contracted state before and after flowering, bear a certain resemblance to those of Calamagrostis epigejos, being, like them, lobed, and either purple or pale green, or a mixture of both, but much superior in elegance.

This very rare and beautiful grass was formerly supposed to be restricted to England, and even there is confined to a few spots on the south and east coasts, no other part of Britain being hitherto known to possess it. It is now ascertained to inhabit other parts of Europe, as in the island of Norderney, on the coast of Hanover, and according to Lloyd ('Flore de la Loire inferieure,' p. 297), on that of Brittany, but rarely. It is not likely, however, to be so circumscribed as it appears, yet must it be very local in its general distribution, both in this country and on the continent. I have not seen even a tolerable figure of this grass in any British or foreign work.

W. A. Bromfield.

Eastmount, Ryde, Isle of Wight.

(To be continued).

Observations on the Notice of the 'Tourist's Flora' (*Phytol.* iii. 1042).

By Joseph Woods, Esq., F.L.S.

Perhaps I ought to be contented with the portion of praise assigned to me by your reviewer "C.," in spite of the somewhat sneering tone in which it is given, and of the cant about *progress;* but I think that I have some reason to complain that he passes the bounds of fair, or at least of civil, criticism when he accuses the work of being false or faithless. A book may be censured in many points without implicating the author's moral character, but it is not possible that a scientific book should be justly stigmatized as false or faithless while the author is altogether honest and upright, and whether intended or not, ninety-nine out of a hundred readers will feel that the expression implies some dishonesty on the part of the writer. I was anxious to examine what the reviewer could find in the book deserving so bitter a censure, and was not a little surprised when I found that the whole charge against me was, that I had not given certain habitats of plants, when I knew them, or ought to have known them, since they had been published in the works of Mr. H. C. Watson. I hardly knew how to believe that any one should pass so harsh a judgment, avowedly on such slight grounds. I never pretended, or imagined, that plants were necessarily absent wherever their presence was not expressly declared. Perhaps I have been rather less solicitous about the British stations than about foreign ones, thinking that my readers when in their own country were more likely to apply to works expressly devoted to British botany, and that little more was wanting in that respect than to point out whether the plant before the student was one that might be met with at home. The habitat of Lastrea Fœnisecii was an error of the press,—"N. England" for "W. England." In general, I conceive that in a work like the 'Tourist's Flora' the habitats can only be considered as indications of the points on which it would be desirable to seek local information, and perhaps to give the young botanist some additional confidence in the result of his investigation, when he finds the species at which he has arrived a native of the district where he finds it, or of its neighbourhood. To have given such habitats as would enable the botanist to find the precise locality, would have enlarged the work most inconveniently. I have sometimes thought that, if a sufficient portion of life and health were spared to me, I would publish a botanical guide, as a companion to the 'Tourist's Flora,' but I could not hope to compress it in much less compass than the work itself. Gaudin's 'Botanical Topography of Switzerland' forms an octavo of 667 pages, and Mr. Watson's 'Botanist's Guide for England and Wales,' in a smaller form, contains 398. The larger extent of country embraced in the 'Tourist's Flora' would necessarily occupy more space.

JOSEPH WOODS.

Lewes, Sussex, October, 1850.

Contents of 'Hooker's Journal of Botany,' No. 22, *October,* 1850.

Notes on the Botany, Weather, &c., of the United States. By Dr. W. A. Bromfield.

Continuation of Mr. Spruce's Letters from South America.

Extract of a Letter from Dr. J. E. Stocks; being an account of a journey into Beloochistan.

Appendix to the 'Spiciligea Gorgonea,' published in the 'Flora of the Niger Expedition.' By P. B. Webb, Esq.

Botanical Information: Amherstia nobilis. Mr. Sullivant's new Mosses and Hepaticæ from Tierra del Fuego. The Gingko-tree (*Salisburia adiantifolia*) on Boston Common.

Contents of the 'Botanical Gazette,' No 22, *October,* 1850.

On Carex ampullacea (*Good.*) and Carex vesicaria (*Linn.*); with remarks on their modifications of form. By N. J. Andersson. [These species are said to change gradually, and correspondingly, with increase of elevation, and with other conditions analogous in influence, until the former appears to become C. rotundata (*Wahl.*), and the second to become C. pulla (*Good.*). It would seem further, from the author's remarks, that English botanists have been misled in substituting the name of C. saxatilis (*Linn.*) for that of C. pulla; the Linnean name more probably having been intended for C. rigida (*Good.*). The paper is translated from the 'Flora' of May 21, 1850.]

On Triticum laxum (*Fries*). By Charles C. Babington, M.A. [A description of a sea-side grass, probably not scarce on the shores of Britain, which is usually regarded as a small form of Triticum junceum. Said to be distinguishable from the latter species by flat (not involute) leaves, which are rendered scabrous on the upper surface by numerous acute points. This latter character, with some others, is stated also to distinguish T. laxum from the littoral form of T. repens.]

Additions and Corrections to the Abstract of 'Fries's Hieracia.' From notes furnished by James Bladon, Esq. [Includes useful comparative lists of the species mentioned in Babington's 'Manual,' in Arnott's new edition of the 'British Flora,' and in the abstract of Fries's essay.]

Literature: Irmisch's Morphology of Tuberous and Bulbous Monocotyledonous Plants. Contents of various botanical journals.

Proceedings of Societies: British Association for the Advancement of Science. Botanical Society of Edinburgh.

Miscellanea: Record of Localities. Discovery of Naias flexilis in Ireland. New Locality for Carex punctata [query, C. distans]. Thuret on the Moving Spores and Spiral Fibres of the Cryptogamia. Gasparini's Herbarium offered for sale. E. Bourgeau's Spanish Collection for 1850.

Note on Lastrea uliginosa. By the Rev. W. T. Bree, M.A.

In consequence of the notice relating to Lastrea uliginosa on the cover of the August number of the 'Phytologist,' I have lately procured, through the kindness of a friend, a living plant of that fern, from Mr. Kennedy, in fine condition and fructification; and I feel no hesitation whatever in saying at once that it is *not* Lastrea Filix-mas, rigida, or cristata! The fern is familiar to me as what I have long been accustomed to distinguish by the name of Aspidium spinulosum, *i. e.*, Lastrea spinosa of Newman. The species is not uncommon in this neighbourhood in moist woods and bogs; but here with us it is usually of a much paler green. The darker colour of Mr. Kennedy's plant may possibly be owing to cultivation, soil, situation, &c. In Coleshill Bog, where the fern occurs in exposed situations, quite unsheltered by trees or bushes, the fronds are of a very light green, or rather of a yellow colour. I am decidedly of opinion that Lastrea *uliginosa*, which I admit would be an appropriate name for the plant, cannot be considered as a distinct species, and that it is only one of the *phases* of the somewhat variable Lastrea spinosa, or, as it is, I believe, more generally called, spinulosa.

W. T. Bree.

Allesley Rectory, October 14, 1850.

Botanical Society of London.

Friday, October 11. Arthur Henfrey, Esq., V.P., F.L.S., in the chair.

The following donations were announced:—British plants from the Rev. F. Douglas, Mr. J. B. French, Mr. R. Withers, Mr. J. H. Wilson, Mr. T. Dutton, the Rev. W. M. Hind, Dr. Caspary, and Mr. G. E. Dennes. 'Du Mode d'Action de la Chaleur sur les Plantes et en particulier de l'Effet des Rayons Solaires,' par M. Alph. De Candolle; presented by the author. 'Journal of the Royal Agricultural Society of England;' presented by that Society. 'Journal of the Statistical Society of London;' presented by that Society. 'Journal and Transactions of the Pharmaceutical Society;' presented by that Society. 'Transactions of the Royal Horticultural Society of Berlin;' presented by that Society.

G. C. Churchill, Esq., of Harpenden, Herts, and Miss Evans, of Coventry, were elected corresponding members.

Mr. Daniel Oliver, Jun., exhibited specimens of Naias flexilis, *Rostk.*, discovered by him in a pond near Roundstone, Connemara, Ireland, in August last.

Mr. Daniel Stock communicated a paper 'On the Botany of Bungay, Suffolk.'—*G. E. D.*

Note on a remarkable Monstrosity in a specimen of Verbascum nigrum. By H. L. de la Chaumette, Esq.

This curious specimen was presented to me by my friend W. Coles, Esq. It was gathered in a lane near Reading, in Berkshire. The plant was found growing amongst many of its species. The whole of the bright yellow corollas forming the spike were transformed into green leaves, of the same shape as the corollas of the usual specimens. The pedicels bearing these green corollas were elongated to about an inch. From the centre of these corollas the pistil apparently arose, as a pedicel, bearing a similar green corolla on its summit. In various instances the stamens had the appearance of being converted into small, undeveloped buds. This gave the whole a very remarkable appearance. What could have been the cause of such a change in this one plant, all the others retaining their usual form of development?

H. L. de la Chaumette.

Church St., Stoke Newington.

A Catalogue of the Plants growing wild in Hampshire, with occasional Notes and Observations on some of the more remarkable Species. By WILLIAM ARNOLD BROMFIELD, M.D., F.L.S., &c.

(Continued from page 1084).

Milium effusum. In moist, shady woods and thickets. In various parts of the Isle of Wight, but not very common, and principally found in East Medina. About Ryde, in Quarr Copse, in some parts of which it is common; in Shore Copse, sparingly; wood between Quarr and Ninham; in Briddlesford, Bloodstone and Inward's Copses; New Copse, near Wootton Bridge. Sparingly in copses under Arreton and Mersley Downs. Wood at Apse Castle; in Cowpit Cliff, Greatwood and other hill-side copses, between Shanklin and Bonchurch, plentifully. Wood near Norris Castle, East Cowes. Tolt Wood, near Gatcombe (in W. Medina). Copse on the north side of Wroxall Down, above Wroxall Farm. I happen to have few stations for this conspicuous grass marked down in my notes for mainland Hants, but find it to be very general over that part of the county. Harewood Forest, near Andover, in plenty, and in woods about three miles from the same town, a little beyond Enham, on the Newbury road, 1850. Profusely in Crab Wood, by Sparsholt, three miles west of Winton, May 28, 1850. Hambledon Woods, about Alton, as in Akender Wood, Chawton Park, Rotherfield, Selborne and elsewhere, in plenty, June, 1850.

Agrostis setacea. On dry, turfy heaths, commons and high downs, sometimes also in woods and copses, where the soil is sandy or gravelly (never, I think, seen on the chalk); abundantly in the Isle of Wight, and the maritime districts of mainland Hants. Plentiful on the higher parts of Apse Castle. Profusely on St. George's Down and Stopler's Heath, by Newport, as also, before it was enclosed, on Royal Heath, Sandown. Heathy places about Kingston. In Youngwood's Copse; all over Bordwood Copse, Apse Heath and other places about Newchurch, abundantly, and indeed in most dry, heathy and elevated ground throughout the island. About Colwell Hill Farm and Freshwater, not unfrequent, Mr. W. D. Snooke in Fl. Vect. Not less plentiful on the mainland of Hants towards the coast; extremely rare, if found at all, in the centre and north of the county, but I have not yet determined its limits inland. The staple grass in most of the following localities:—Brown Down, behind Stoke's Bay; on Titchfield Common; Southampton Common; the prevailing grass on most heaths about Southton. Profusely in the Poole basin, about Bournemouth, and on all the heaths and moors about Christchurch, Lymington, Beaulieu, and other parts of the New Forest and Christchurch hundreds, near the coast, in vast quantity. On dry, gravelly, heathy ground south of Anfield Church (part of Anfield Common ?), June 26, 1850, the most northerly station in the county hitherto known to me.

This, the Rabbit or Deer's-foot grass of the Isle of Wight, is remarkable for the bristle-like slenderness of its leaves, constituting dense tufts of silvery gray, and forming a soft, highly elastic but slippery turf, exceedingly pleasant to walk or recline upon from its dryness, growing thickest and most cushion-like under the shelter of the heath and furze. The panicle remains closed as well before as after flowering, and indeed is but little expanded at any time, excepting in favourable states of the weather and at certain hours of the day, collapsing even then on being gathered. I do not believe A. setacea is relished by sheep, if they touch it at all, as in many parts where this grass forms the staple of the herbage, and sheep abound, its silvery panicles wave uncropped by these animals, and the root-leaves are not eaten down by them that I can perceive. It is a strange fact in the history of this grass, that although so profusely abundant in the south-western English counties, it was known, or at all events distinguished as a species, only in modern times, being probably confounded with other kinds of Agrostis, since no mention or description of it occurs in any author down to the time of Ray, who, one would think, must have detected its characters had he seen it growing. Even Hudson, so late as 1798, thought it a variety of A. canina in his 'Flora Anglica.' Curtis has the merit of first making it known to botanists, and his figure in 'Flora Londinensis,' like all from his pencil, is admirable. Although so abundant in all the south-western counties and in our own, the termination of this species to the north and east is remarkably abrupt. In Sussex it has hitherto been detected in a single locality only, and Bagshot Heath, in Surrey, is at once the most boreal and inland station that stands on good authority. The Yorkshire station is very apocryphal.

Agrostis canina. In moist woods, meadows, pastures, and on damp heaths; common.

Agrostis vulgaris. In rough, stony or sandy pastures, on heaths, by road-sides, and in other dry places; abundant everywhere. Often very diminutive on arid heaths and wastes, where I suppose it is the A. pumila of Lightfoot's 'Flora Scotica.'

Agrostis alba. In moist woods, meadows, ditches, damp corn-fields, grassy pools, and other wet places; common. Covers all the damp ledges of the cliffs to the north of Shanklin Chine, in great quantity and very large.

Apera Spica-venti (Agrost. Spic.). In dry, sandy, chiefly cultivated fields, and on banks adjacent; probably not rare on the eastern border of the county; not remarked in other parts of it, nor in the Isle of Wight. In vast profusion in the sandy fields at Cove, near Farnborough, where it is a troublesome weed amongst the crops of every description, wheat, barley, oats, beans and potatoes, also growing on the sandy borders of the fields, July 14, 1850. Common in corn-fields at Aldershot, two miles from Farnham, chiefly amongst wheat, August 2, 1850. I venture to predict that this most beautiful grass, which was sent to me in August, 1849, from the Farnborough station, as a Hampshire native, by Mr. H. C. Watson, will be found in many parts of the sandy tract between Petersfield and Farnborough, since it abounds in some of the adjacent parts of Surrey. Possibly, too, A. interrupta, lately discovered at Thetford, in Norfolk, may be found within our limits, a plant I am not acquainted with, and by some held to be a mere variety of A. Spica-venti. Few of our native grasses come up to the present in elegance, as seen waving its large, silky panicle in the breeze amidst the standing corn, rising to a height of two or three feet.

Obs.—At Aldershot, Campanula Rapunculus grows in very considerable plenty on hedge-banks and borders of fields, as intimated to me by Mr. W. Reeves last year, thus confirming it as a plant of the county. The Petersfield station mentioned in a former part of this catalogue, on the authority of Goodyer, I have great reason to believe was an error of the old botanist, and that C. patula was the species intended by him, as I find the latter in abundance in a sandy field on the north side of Petersfield Heath, but no traces of C. Rapunculus exist there at present.

Obs.—I am strongly impressed with the idea that Stipa pennata will eventually be confirmed to the British flora, by its discovery in the south-east of England. This remarkable grass is generally spread over southern and central Europe, being enumerated in the floras of Germany, Belgium and the north of France (Paris, Rouen, &c.). Dr. Salter tells me that, when a student at Guy's Hospital, he once saw numerous specimens of Stipa pennata, brought in by a person employed there, who had gathered them wild, as he affirmed, in the neighbourhood of Dorking; the person is since dead, and Dr. S. has no clew to the locality. A plant of this kind, limited perhaps to a single circumscribed station, is as likely to elude observation as Teucrium Botrys, Apera interrupta, Simethis bicolor, and other recent but indubitably indigenous additions to the English flora.

Arundo Calamagrostis (Calam. lanceolata). In boggy, moory or marshy ground, wet hedges, woods, meadows and ditches; very rare? Not yet seen in the Isle of Wight. In wet or boggy hedges on the east side of Gomer Pond, Mr. Borrer. I gathered it in moderate plenty on boggy, moory meadows, amongst Arundo Phragmites, rushes, and coarse herbage of various plants, very near the Grange Farm, by Alverstoke, June and July, 1849. The station at Marchwood, near Southampton, sent by me to Mr. Watson, and inserted by him in the 'New Botanist's Guide' (Supplement), as on Mr. Borrer's authority, was a mistake of my own, for which I cannot now account, Mr. B. never having, as he tells me, found this species at Marchwood.

Arundo Epigejos (Calam. Epigejos). In open places, and borders of moist woods and thickets, in damp, shady, bushy pastures, on sand and clay; abundant on the northern side of the Isle of Wight, and especially in East Medina. Everywhere about Ryde, where there are few patches of copse or thicket wholly without this grass. In Quarr Copse, Shore Copse, Whitefield Wood, &c. Woods about Wootton Bridge and Havenstreet. At St. Helen's, in a wood by Hill Farm, and in rough, bushy ground by the descent to the mill from the green. In Long Phillis and Inward's Copses, near Ashey. Above Cowpit Cliff, near Shanklin. Near the Medina, above Cowes, in and about Parkhurst Forest and elsewhere near Newport. Almost everywhere along the shore, on wet clay, between East Cowes and King's Quay, as well as on the shores of the latter estuary. Less frequent in West Medina, but frequent about Yarmouth, as in Salterns Copse, by the road side nearly opposite Afton House, in Thorness Wood and shore adjacent, near Wellow, &c. Found in numberless other places in the island, but nowhere, I think, on the chalk, neither have I remarked it on the galt or in any part of the Undercliff, or elsewhere along the south coast. Woods along the Beaulieu River, between Beaulieu and Exbury, and near Upper Exbury brick-field, Aug. 28, 1850.

Psamma arenaria (Ammophila arundinacea). On loose sand of the sea shore; abundantly. Plentiful on the Spit at Norton and St. Helen's. On the beach at Sandown, but not plentiful. Used formerly to grow, but very sparingly, at the east end of Ryde Dover; probably now destroyed. Profusely along the south beach of Hayling

Island, particularly amongst the sand-hills at its western end. Sandy cliff and banks between Christchurch and Bournemouth, abundantly, and most profusely (covering hundreds of acres almost exclusively) on the sandy shores of Christchurch Harbour, Calshot Beach, &c. This grass is remarkable for having the culms solid or with a central perforation only, an unusual feature in the order of Gramina.

Phragmites communis (Arundo Phragmites). By rivers, ditches, ponds, in wet meadows, woods, thickets, osier-beds, damp hedges, and wet, marshy places in general; abundantly throughout the county. Plentiful in the Isle of Wight, even in salt-marsh ground, as along the Yar, between Freshwater and Yarmouth, &c. Var. β. Culms sterile, procumbent or trailing, twenty to forty feet or more, in length. Phragmites communis, b. *repens*, Meyer. Chlor. Hanov. p. 650; W. A. B. in Phytol. i. 146. On wet banks of sand and slipped clay along the south and east shores of the Isle of Wight. Common along the shore at Puckaster Cove, trailing to a great length on the flat sands or hanging from the clay-banks above the beach, also in other places along the south coast. Near the Shanklin extremity of Sandown Bay, and rooting at the joints. In a ditch between Sandown Bay and Lower Morton Farm, I found it with culms of considerable length, floating, and emitting fibres from the joints, Aug. 1842. At Bembridge, Dr. T. Bell Salter. This singular form of the common reed of our ponds and marshes, appears to have been first remarked by Merrett ('Pinax,' p. 11) in this island, and his brief notice quoted by Dillenius, at the end of his edition of Ray's 'Synopsis,' in a list of uncertain, obscure or ill-authenticated species, on which it was desirable, if possible, to have light thrown. Meyer, in the 'Chloris Hanoverana,' is the only foreign author I find who has described this prostrate form, which he says occurs in the island of Norderney (the only German station for Polypogon littoralis), and Koch, Syn. 2nd edit., in sandy fields of the plain or valley of the Rhine (Rheinfläche). A more particular account of this variety will be found in a former volume of the 'Phytologist,' cited above.

Obs.—Cynodon Dactylon it is likely may be detected on the sandy sea-shores of this county, or perhaps in the sandy fields of the interior, as, notwithstanding it has hitherto only been remarked in England as a maritime and western species, on the continent it is by no means confined to the vicinity of the sea, but is found abundantly in various parts of France, Germany and Belgium considerably remote from the coast, and ranging as far north as Berlin and Hamburgh. It already approaches our limits very closely, having been detected some years since on the loose sandy beach of Studland Bay, Dorsetshire, by Dr. T. Bell Salter, and where I have myself gathered it in plenty. Its small size and insignificant aspect may occasion its being overlooked or slighted by all but the experienced botanist, whose interest is not exclusively engaged by magnitude or beauty of form and colour. This little, wiry, unpromising grass is dispersed over a large part of the warmer regions of the earth, and has obtained much celebrity for its nutritive properties, in both hemispheres. It is the Durrah-grass of India, the Crab-grass and Bermuda-grass of North America and the West Indies, and in all these countries is esteemed valuable pasture for cattle. The truth is, it is only deserving of regard in climes where our fine, succulent, meadow grasses will not succeed, and from its power of resisting the fiercest heat and drought of summer, in the sandy soil on which better herbage cannot grow.

Spartina stricta. In muddy salt-marsh ground along the coast, and at the mouths of rivers and creeks, always in the ooze of spots wholly or partially overflowed at high water; abundantly in most parts of the Isle of Wight, and of the opposite mainland, where mud-flats abound. Plentifully along the Wootton River, below Wootton Bridge. Shores of the Medina above Cowes, frequent. Salt marshes along the Yar, at Yarmouth, and near the shore at Norton. Newtown salt-marshes, in profusion. By the Southampton Water, below the town, and muddy shores of the Itchen River, near its junction with the Southton Water. I think I have remarked it in Hayling and Portsea Islands, but have lost or mislaid a quantity of notes made there a year or two back. Shore at Lower Exbury, in plenty. About Portsmouth, very abundant, Dr. Macreight, Man. of Brit. Bot. Between Southton and Millbrook, Winch in New Bot. Guide. Cams shore (Fareham), Mr. W. L. Notcutt! and doubtless in many other places along the coast. If it be not allowable to tax Nature with downright ugliness in any of her productions, it must be admitted that Spartina stricta has received fewer embellishing touches from her creative hand than most other members of a natural family in which artistic skill and finish are signally displayed. Our Spartina is, to call it by the mildest term, a very plain grass; its dwarfish stature, stiff; erect, rigid habit, totally devoid of all grace; its pale, sickly colour, a dirty, yellowish or brownish green, with sometimes a tinge of lurid purple, and made more dingy still by incrustations of slime and mud, from which it is seldom free,—when to all these defects is added the rank smell which distinguishes all the species of Spartina, we are forced to assign to the Twin-spiked Cord-grass the very lowest station amongst the British species of this usually beautiful family of plants. Neither does it recommend itself to notice by any known uses like the following, unless, as in that, by its creeping and fibrous roots serving to consolidate the soft, fluctuating soil on which it grows, and affording a safe, if not dry, footing over the dreary waste of muddy salt-marsh. I am not aware that any animal will touch this grass, and the straw is much too short either for litter or thatching. Although found sparingly in Devonshire (ex herb. Smith), it appears to be everywhere scarce to the westward of the Isle of Wight, but extends southward into Africa, as far at least as Mogador, from whence I have seen specimens. The distinct articulation of the leaves, with their sheaths, by a slightly raised fillet or ring-like and cartilaginous joint, at which a separation can be easily effected at any time, will always distinguish this species from stunted or nascent specimens of the following, which sometimes resembles it not a little.

†*Spartina alterniflora.* In precisely similar situations with the foregoing species, but far rarer, and indeed only known in Britain on the subjoined station, where I feel pretty well assured it must have been introduced, although now perfectly naturalized. Profusely on mud-flats of the Itchen River, at Southampton, 1836. (For a full account of the characters, habit and uses of this species, see Hooker's 'Companion to the Botanical Magazine,' ii. p. 254.) Although unable to ascertain with any precision the date of its introduction to this country, I cannot persuade myself that this fine grass is aboriginal with us in England, a conclusion I should be the more happy to arrive at, since I was myself its discoverer at Southampton, and botanists, to whose opinion the greatest respect and deference is due, are arrayed against me in its favour. My objections to receive it as a strictly indigenous grass are, first, its limitation in Europe to a couple of stations on the western coast, both sea-ports having constant communication with America, over which continent it is very widely and abundantly distributed, but is quite unknown in our hemisphere, excepting in the two localities just mentioned.* Secondly, the weight of local testimony goes to prove that the Many-spiked Cord-grass was unknown at Southampton within the memory of persons now living, and although the evidence I have been able to collect be sufficiently confused and contradictory to show that very little is known about the origin of this grass with certainty, it is not so weak that we can

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* The other European station for S. alterniflora is in salt marshes by the Adour, at Bayonne (Loisel. Fl. Gall. 2nd edit. i. p. 41).

safely set it aside in a case so open to suspicion as the one before us. Were additional stations to be discovered for S. alterniflora on our own or other European coasts, where no communication was kept up with America, I should feel justified in admitting it as a species common to both continents without hesitation, regarding the suspicious nature of the Southampton habitat in the light of a mere coincidence; as it is, reason, I think, demands the withholding the full rights of aboriginality from a plant that betrays its exotic descent in so palpable a way as this. I do not understand how those who are so forward to doubt the indigenous claims of many a strictly European plant in Britain, can consistently pass an acknowledged and almost exclusively American one into the list of indubitable natives, as is negatively done in our standard botanical text-books by the omission of the usual symbols of distrust. As to the way by which this grass may have been conveyed hither from America, a few of the creeping roots accidentally taken on board a trading vessel, with ballast or freight, would retain their vitality long enough to vegetate when thrown out upon the muddy shores of a tide-river like the Itchen, and would afterwards propagate the species by the runners they send out, for neither this nor our native species, S. stricta, perfect seed, at least habitually and plentifully.

S. alterniflora is a valuable grass, and notwithstanding the fetid odour it has in common with the rest of the genus, affords grateful and nutritive food for cattle. I had already pointed out its practical application to purposes of rural economy by the people of Southampton in my memoir above alluded to, when I was both surprised and gratified to find during my late tour in the United States that it was used in that country just in the same way as in our own. At Southampton it is regularly cut down by the poorer classes, and employed by them in lieu of straw or reeds for thatching out-houses, cattle-sheds, &c., and more extensively for litter, and subsequently as manure;* horses and pigs, I am told, eat it greedily; and for all these purposes it is much sought after, so that hardly an accessible patch is suffered to remain uncut by the end of September.† As fodder, it

* A labouring man with whom I conversed, in 1836, on the uses of this Spartina, assured me he remembered it in its present station upwards of twenty years; had formerly employed it in thatching a part of his own premises, and found it outlast two courses of straw. "The people here know it only by the common name of "sedge."

† Elliott says of S. glabra (S. alterniflora):—"This plant is greedily eaten by horses and cattle. It is remarkable for a strong rancid and peculiar smell, affecting the breath, the milk, butter, and even the flesh of the cattle that feed upon it. It

ought, I conceive, to be cut much earlier, when in flower in July and August, as it is then more tender and succulent, and the rancid smell, which to myself comes near that of phosphuretted hydrogen, is not repulsive to stock, to which it probably recommends itself by the salt it contains. For this reason, and from the power of the creeping roots to bind and consolidate the soft soil deposited by the tide, it might be advantageously planted on the mud-flats of our southern and eastern coasts. In America, S. alterniflora abounds from north to south. I observed it abundantly at Boston, New York, and at Charleston, S. C., on the mud-flats of the Ashley and Cooper Rivers, and in the salt swamps and creeks that intersect the suburban districts of that pretty but insalubrious city. I am not aware of any use this grass is put to in New England or at New York, but in Charleston, where, as at Southampton, it covers acres of salt marsh around the town, looking at a distance, when ripe, somewhat like fields of wheat, it is of great importance, and in the months of May and June, when fresh and succulent, and before flowering,* bundles of Spartina (there called "salt-marsh," or simply "marsh," sometimes "grass"), made up like wheat-sheaves and set on end, may be seen for sale at the corners of the streets and in the markets, chiefly for the use of horses. An intelligent negro of Charleston assured me that from May to September stock were very fond of it, but refused it earlier and later, when it becomes hard, dry and unpalatable, and I think loses much of its odour. This man further told me that a coarse hay was made from it, and the straw used for littering cattle, thus confirming Elliott's account in every particular. That its properties and appliances should so soon have been discovered and carried out in England, where the field for experiment was so contracted, is a curious circumstance in the history of this interesting grass, and speaks much for its practical value to the agriculturist. Professor Gray, in his 'Manual of the Botany of the Northern United States,' fears to adopt the prior name, *alterniflora*, of Loiseleur Deslongchamps for Muhlenberg's *glabra*, not being certain that the two plants are the same, since Trinius says the leaves are "margine hispidula." The Southampton plant at all events has the leaves perfectly smooth on the edges, and so, as far as I can see, have those of a single Unio Itine-

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affords, however, good pasturage for out-door stock, and is becoming valuable and valued as a manure." ('Sketch of the Botany of S. Carolina and Georgia,' i. p. 96).

* At Charleston it flowers scarcely a month earlier than at Southampton, where it begins to blossom towards the end of July, continuing on into September.

raria specimen I possess from Bayonne, kindly given to me by Sir Wm. Hooker, but which were suffered to become involute in drying, which they never are naturally, and are, besides, firmly glued to the paper. May not the leaves be occasionally a little rough-edged, both in European and American specimens?

Andropogon Ischæmum I should never be surprised to hear had been detected in the south-east of England.

Leersia oryzoides. In and about the grassy or reedy margins of rivers, brooks, ditches and ponds, in swampy meadows, wet hollows, and other marshy places; very rare? In many parts of the Boldre River, West Hants, in great plenty, 1849 and 1850. Since the account of my finding this extremely curious and interesting grass with us was published in this journal for November, 1849 (Phytol. iii. 681), my anticipations of detecting it in increased frequency and abundance have been amply realized. I am now enabled to announce it as abundant in the Boldre River, for nearly three miles along the stream above and below Brockenhurst Bridge. In tracing the plant above bridge I commenced, August 24, with the southernmost tributary, or branch of the river, which diverges to the left from the main stream, in a westerly direction, at the west corner of New Park Inclosure, and is known as the Rhinefield Water, along which I found the Leersia in plenty, at distant and irregular intervals, for about a mile and a half, on both banks, becoming more frequent as I ascended the stream, and growing chiefly where the banks expanded into small, marshy flats, as near the Aldridge Inclosure, above Rhinefield Lodge, but ceasing entirely higher up, where, on approaching Markway Bridge, the country assumes more completely the moorland character. Here the Leersia grew very large and luxuriant, amongst Myrica Gale and other swamp shrubs, always in or close to the edge of the stream, and remarkably erect, the panicles fully formed, but no portion of them protruded from the sheaths. Descending the river, we first find the Leersia again at Brockenhurst Bridge, as described in a previous communication; here are two moderately sized tufts of it only, growing out of abundance of Isnardia palustris,* just under the railing at the Brockenhurst side of the bridge, and on the left hand crossing over it to go towards Lyndhurst. Pursuing the downward course of the stream, we find the plant again under the wooden railway viaduct between the bridge and Brockenhurst Mill, and in this part of the river I may mention grows plenty of Ribes nigrum, in an unquestionably native state. A little below the mill the Leersia shows itself for the third time, and may be found in plenty in an expansion of the river between the wooden bridge across the ford, a couple of hundred yards at most from the mill, and where the stream enters Brockenhurst Park under some heavy palings placed across it, not a weir, as stated in the former account. Within these palings, and consequently in the park, the Leersia speedily becomes more abundant than ever, forming patches by itself of several feet in length, and so continues at intervals for perhaps half the extent of the park, when it ceases rather abruptly, as I was unable to trace a single plant lower down, towards Boldre Bridge, where the water becomes saltish, not even at Royden Farm or Hayward Mill, where the current is quite fresh. I have tracked the main stream of the Boldre River, above Brockenhurst Bridge, very nearly up to Lyndhurst, but find none of the Leersia along any part of its course, which, however, is chiefly between steep water-worn banks, and therefore not fitted for the production of this plant, which delights in the swampy, grass-grown margins of rivers, where such species as Phalaris arundinacea and Phragmitis communis flourish. I have since searched the upper part of the Beaulieu River, and several of the smaller forest streams, but without meeting with the Leersia, which, however, I am confident must exist in more localities than those in which it has yet been detected with us. In particular I should expect it in the Avon and Stour, and their tributaries, as also in the streams and ditches that intersect the great marshy valley between Christchurch and Fordingbridge, about Ringwood, &c. It should likewise be looked for in our mill pools and the large ponds, of which we have so many on the forest lands in east and west Hants.

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* I was fortunate to discover a third Hampshire station for the Isnardia on the 25th of August last, namely, in a damp spot (apparently a water-way in the winter months), in the heart of the New Forest, between two of the branches or tributaries of the Boldre River, a little to the north-west of New Park Inclosure, and about two miles in the same direction from Brockenhurst Bridge, an exactly similar locality to that of the Isnardia on Petersfield Heath, and where it occurs, as there, in plenty, with Helosciadium inundatum and Peplis Portula for its associates. On this station

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the plant flowers and fruits freely, trailing on the damp but not overflowed soil, although much smaller and less luxuriant than at Brockenhurst Bridge, where it grows submerged, and fructifies much more sparingly. A search for this and the Leersia will lead the botanist into some of the most lovely and secluded forest scenery in Europe, into shades as solitary and primæval as the back woods of America, where he may wander for miles and for hours together without meeting a human creature, through groves and glades of brave old oaks and beeches, with no underwood to impede his steps.

In our Hampshire waters the Leersia usually grows quite erect, whether the culms be few or, as they more frequently are, numerous from the same root; but occasionally some of the culms become reclining, decumbent or even procumbent, or at least very strongly geniculate, especially when the plant is growing from a projecting portion of the bank. I have never seen the Leersia in England as an inhabitant of simply marshy places, as in other countries, but always in or closely contiguous to water, usually with the bases of the culms immersed, but creeping now and then for a foot or two upon the wet soil of the banks, amongst other aquatic grasses. The power the leaves and sheaths possess of cutting the hands of those who gather the plant would seem to be overrated; that it is capable of doing so I can assert from personal experience, but the occasional slight incisions caused by its asperity scarcely go deeper than the cuticle, at least with myself; in some of its rougher states, however, it might prove more formidable. The Leersia is one of the very few British grasses that are branched, and the only one that bears two, three or even four panicles on the same culm from the axils of the lower leaves, in both which characters it recedes from most Gramina of the temperate zone, and assimilates to those of tropical regions. The resemblance in structure, habit, colour and general aspect of this singular grass to the awnless variety of the cultivated rice is indeed very remarkable. Another feature worthy of notice in our Leersia is the extreme tendency in the leaves to become involute on being gathered, which happens so rapidly that a few minutes suffice for them to roll up completely into a cylinder; the same effect follows almost instantaneously if the leaves be drawn through the fingers or handled in any way. This result can be prevented by always leaving the root attached to specimens intended for preservation, for if put with a mass of roots thoroughly saturated but not dripping with water, into a closed tin collecting box, the leaves will retain their flatness perfectly for two or three days, and when laid out, the roots should still be left attached, as, if severed, the leaves will instantly begin to curl up when placed in contact with the drying paper, and even when the above precaution is observed, the specimens must be handled as little as possible, and subjected to pressure without delay. The Leersia is indeed a most intractable plant for the herbarium, where specimens are desired that shall really exhibit the character of the grass, not only from the above-mentioned tendency in the leaves to curl up, but from the size, length and branching of the larger examples, and particularly from bearing two or more panicles on one stem, which prevents its being folded or doubled on the paper with the same facility as other British grasses. The best time for collecting the Leersia is towards the middle of September, which is, I think, the average season of flowering with us, but as only a very small portion of the panicle is usually protruded in this country from the top of the sheaths, it is difficult to ascertain when the flowering actually begins; I suspect it often commences in August, and the seed is ripe in October. The roots are easily pulled up out of the soft mud by grasping the culms at bottom, and come up in huge, matted clumps, which are readily cleansed by repeated plunging in the stream; the superfluous water should then be wrung out, and the mass divided into portions as large as can be conveniently packed in the collecting-box. In this way only can specimens be preserved in a perfect condition for drying, on the return home of the collector, or for transmission to distant correspondents. I do not think it would be possible to collect the Leersia between the leaves of a field portfolio, unless strapped together much tighter than could be conveniently managed, to obviate involution. There is this advantage, too, in keeping the specimens with their roots thoroughly wetted in a close tin vasculum for about twenty-four hours previous to laying them out, that the panicles, I find, by the warmth and moisture of the included air, partially make their egress from the tops of their sheaths much more decidedly than when growing in their native waters, thus approaching closer to the normal state of the inflorescence, as developed in the south of Europe.

An opinion seems to have prevailed amongst some botanists of Germany that Leersia oryzoides was introduced to the ponds and rivers of that country from Italy (Phytol. iii. 682, note). The cause of this idea, I apprehend to be, that the grass was overlooked there in the same way and for the same reason that it so long escaped detection in England,—its clandestine mode of flowering in central Europe. If not rare, it is at least a local species on the continent, and possesses little or nothing in its general aspect to attract attention from the passer-by. Mr. Borrer has remarked to me its great resemblance to the barren shoots of Phalaris arundinacea, its common associate, and to which genus it was even referred by Linneus, but may always be distinguished from that common grass by the paler, yellowish or brownish green of the leaves, not to mention their extreme roughness. It is probable, however, that this resemblance may have contributed in no small degree to veil it from observation, both in our own country and on the continent. Schreber (Beschreib. der Gräser, 2ten th. s. 7) says our Leersia was first discovered in Italy, by Padua, Verona, &c.,

subsequently in Switzerland and different districts of south Germany, and finally in various other and more northerly parts of that country, as Saxony, Hesse, &c. It is now ascertained to inhabit most parts of continental Europe south of the Baltic from Belgium, eastward to Poland and Russia, and northward as far as Holstein (Fl. Dan. x. fasc. 30, p. 1, t. 1744). The occurrence in Britain of plants of so austral a type as Leersia and Isnardia, should be a hint to some of us not to be so ready to doubt the indigenous origin of every new and many an old discovery, for I suppose few will impugn the aboriginality of these two species, since neither are ever cultivated for their beauty or other qualities. So long, however, as such plants as Cyperus fuscus and Viola odorata are objects of expressed suspicion, and the asterisk is still appended to even such boreal productions as Aquilegia vulgaris and Humulus Lupulus, there is no security for any British vegetable being permitted to flourish with its claims to nativity unimpeached. The figure of Leersia oryzoides in 'Flora Danica' (ut supra), and that of Host, Gram. Aust. i. t. 35, are admirable full-length portraits of that grass as it usually exhibits itself in this country. Schreber's figure (Beschreibung der Gräsen) is also very accurate, and that author notices a peculiarity in the structure of our Leersia which seems to have escaped the observation of all previous and subsequent describers of the species, and which I find very correctly stated in his excellent and detailed account. At the origin of each branch of the culm, or in the axil of the bifurcation between the branch and main stem, will be found a long, narrow, pellucid and membranous appendage, sometimes of a brownish colour, applied by its thin margins to the branch, which margins form a fold or reduplication, that is garnished with long, white, silky, rather distant or scattered hairs, directed downwards according to Schreber (herunterwärts stehenden), but spreading in our Hampshire specimens.

Obs.—Sesleria cærulea, which occurs on the chalky hills and banks of Normandy, may well be supposed able to maintain itself on the same formation in the south of England; this probability of its occurrence should therefore be kept in mind by botanists residing in the Channel districts.

Aira cæspitosa. In moist, shady places, woods, thickets, groves, &c.; plentiful in the Isle of Wight and throughout the county. In Quarr Copse, Apley Wood, and elsewhere about Ryde. Abundant in woods at Yarmouth, &c., and in most parts of mainland Hants.

Aira flexuosa. In dry, heathy, hilly pastures; decidedly very local in the Isle of Wight, but probably not rare in the county. On

St. George's Down, by Newport. At Apse Castle, near Shanklin, abundant, but confined chiefly, if not wholly, to one part of it, namely, the heathy portion about America. A single specimen found in a corn-field near Mottiston, July, 1838. On Royal Heath, Sandown, Mr. Albert Hambrough! (probably now destroyed by inclosing). I have some how or other neglected making notes of this and the two following grasses on the mainland, although certain of having seen them all three at various times. The present species I have gathered near Farnborough Station, in July last.

Aira caryophyllea. In dry, barren, sandy or gravelly and hilly pastures, on heaths, &c.; not unfrequent. In rough, elevated fields near Bembridge, plentifully. Field between Sandown and Lee Farm, in great profusion. On Royal Heath and Lake Common. Frequent, if I remember right, on Bleak Down, on the sandy fences by the road side, and in various other places. The Salterns (Fareham), Mr. W. L. Notcutt.

Aira præcox. In exactly similar places with the last, also on banks, waste ground and wall tops occasionally, but I think less frequent with us than that. Plentiful some years ago on a waste part of Ryde Dover, but doubtless now destroyed. On the higher and heathy part of Apse Castle, near the top of the hill, abundantly. On Royal Heath, but whether to be found at present on that almost entirely inclosed spot I am ignorant. These are the only Isle-of-Wight stations I find on record by myself; for mainland Hants I have only the following habitat as yet to communicate, although there can be little doubt the early Hairgrass is no uncommon species in the county. Titchfield Common, Mr. W. L. Notcutt. Well distinguished, as they are, by excellent and stable characters, and by the different flowering time, there is a close resemblance between this and A. caryophyllea, which last, in some of its more luxuriant states, incurs greater liability to be mistaken for A. flexuosa than for A. præcox, being in fact a quasi-intermediate, though perfectly distinct, species from both its larger and smaller congeners.

Corynephorou scanescens (Aira canescens, *Sm.* &c.) may be looked for with strong probability of success on the sandy parts of the Hampshire coast. It is stated to occur as near to us as Poole, in Dorsetshire.

Trisetum flavescens. In dry fields, meadows, pastures, heathy places, by road-sides, on banks, &c.; very common in most parts of the Isle of Wight, and I think of the rest of the county; particularly abundant on the chalk, but not unfrequent in sandy places.

Avena fatua. In corn-fields and other cultivated land, in waste ground, fallows, &c.; abundant in most parts of the Isle of Wight, to an injurious degree in cereal and other crops. Much too common about Ryde, Yarmouth, &c. amongst corn, clover, turnips, &c. Generally distributed, I believe, over the county. The more valuable cultivated Oat (*A. sativa*) differs from the present species in its smaller and far less spreading panicle, which continues unilateral to the last; in its smoother, less strongly ribbed florets, nearly devoid of all hairiness beneath, one or more of which are abortive, and wanting the awn, which is shorter, and not geniculate, as in that. The florets of the cultivated Oat are placed upon a short, vertical, compressed pedicel, immediately under their base, in a transverse position, whilst those of A. fatua stand laterally or obliquely upon their very short point of insertion, and are all furnished with awns.

‡*Avena strigosa.* In corn-fields and cultivated ground, in potato-plots, &c., here and there occasionally, but not common, at least in the Isle of Wight, and doubtless introduced with agricultural seeds. In a field at Steephill! A specimen or two amongst potatoes in a garden near St. John's toll-gate, Ryde, Rev. G. E. Smith, 1838!!! I believe I have gathered it elsewhere in the island, but its presence here is quite fortuitous, and hardly entitles it to a place in our flora, even amongst the naturalized species. I am not aware that it is ever cultivated with us as it is in various parts of Europe, and very commonly in the Isle of Skye, as I learn from Mr. Borrer. Spikelets two- (sometimes four-) flowered; both florets perfect, the inner one on a geniculate, bearded pedicel, but neither having any basal tuft, as in A. fatua. Scar nearly circular, neither transverse nor oblique, the pedicel of each floret being rounded, not compressed, as in A. sativa, which the present species much resembles; inserted at the very centre of the base of the pales.

Avena pratensis. On dry pastures and heaths; very common in the chalky parts of the island; and, with the next, on most of the chalk downs in the county. Plentiful on St. Boniface Down, and other parts of the Undercliff; about Carisbrooke, &c.

Avena pubescens. In dry woods, pastures, on chalk-banks, downs, &c., with the last, and I think equally common. Abundant on St. Boniface Down, and elsewhere along the Undercliff. Common about Luccombe, Carisbrooke, Freshwater, &c., Mr. Dawson Turner in Snooke's Fl. Vect. !!!

Arrhenatherum avenaceum (Avena elatior, *Sm.* &c.) In meadows, pastures, thickets, on hedge banks and by road-sides; very common in the Isle of Wight and throughout the county. Var. β. *bulbosum*; frequent. This variety is called Knotgrass in the Isle of Wight.

Holcus lanatus. In meadows, pastures, woods, and about hedges; almost everywhere.

Holcus mollis. In woods, copses, meadows and pastures; usually in more shady places than the last, and much less frequent with us than that. In Quarr Copse, and wood between Quarr Abbey and Ninham Farm. In Whitefield Wood, between Ryde and Brading, and in Stroud Wood, by Aldermoor. The prevailing grass on some parts of Apse Heath. Plentiful in Northland's Copse, near Yaverland. Probably not unfrequent throughout the county, but my knowledge of the distribution of the Graminæ and Cyperaceæ on mainland Hants, even as regards the commoner species, is very limited at present. Cams (near Fareham), Mr. W. L. Notcutt.

Triodia decumbens. On dry, hilly pastures and heaths, also in boggy, moory ground; not, I believe, unfrequent in the island and county generally, but from its depressed mode of growth apt to escape remark. In Firestone Copse. On the down above the Culver Cliffs. Plentiful amongst the furze on Colwell Heath, Freshwater, especially at its north-west corner, close to the bay. Bog at Cockleton, near Cowes. Heathy ground between Yarmouth and Newtown. Grounds at the Priory. Anfield Wood, near Winton. Titchfield Common, frequent, and doubtless in many other parts of the county. This plant is remarkable for having the upper surface of the leaves pale glaucous, the under of a full, deep green, the reverse of which is the case with leaves in general, and the usually membranaceous ligule reduced to a mere fringe of extremely short hairs.

Kœhleria cristata (Aira cristata, *Sm.* &c.). On dry, elevated, sandy or chalky pastures and downs; chiefly, I believe, near the coast. In many parts of the Isle of Wight. Abundant on Brading, Bembridge and Yaverland Downs, and on the edges of the sandstone cliffs above Sandown Bay, plentifully; abundant also along the edge of the cliff between Niton and Old Park. In the Lenten Pit, by Carisbrooke. On Freshwater Down. Maindell Chalkpit (Fareham), Mr. W. L. Notcutt.

Melica uniflora. In shady woods, copses, groves, and under hedges, very common in most parts of the Isle of Wight, and the rest of the county. Common about Ryde, in Quarr Copse, St. John's Wood, &c. Between Shanklin and Bonchurch. Abundant in Chawton Park, near Alton; Enham, near Andover, &c. About Fareham, Mr. W. L. Notcutt.

M. nutans, frequent in some of the northern counties of England, it is possible may one day be found in the south, for which it is indicated doubtfully in the 'New Botanist's Guide.'

M. ciliata, a fine species, with a very different aspect and habit from both our own, and which I have gathered plentifully in the south of France, occurs over the greater part of continental Europe, and is not very unlikely perhaps to prove an addition to the British flora hereafter. It grows in very dry, rocky places.

Molinia cærulea. On heaths, barren, sandy or gravelly pastures, and moory, boggy ground. Frequent in the Isle of Wight. On Stapler's Heath, by Newport, and in Parkhurst Forest, abundant; in the latter it is the prevailing grass. On Apse Heath, Lake Common, heathy places about Kingston and elsewhere, in plenty. Profusely on the boggy moorlands of south-western Hants, in the great fir-plantations about Ringwood, Christchurch, Bournemouth, &c., and in most other quarters of the county, particularly in the old forest districts of Wolmer, Holt, Bere, &c. Var. β. Leaves longer and less rigid; panicle green. M. (Ernodium) cæruleum, var. *atrovirens*, Dumort.? In shady places, under trees; Parkhurst Forest, &c. A mere state of the plant, induced by shade preventing it from acquiring the violet or deep purple which distinguishes it in more open situations. Like the following (Catabrosa aquatica), this grass has been the sport of system, having been a Melica, Aira, Festuca, Poa and Arundo, from its affinity to all, uniting itself completely with none, and hence properly constituting a genus apart.

Catabrosa aquatica. In shallow pools, ditches, drains, and other wet, swampy places. Rather uncommon in the Isle of Wight. In several marsh-meadow ditches in Sandown Level, above Alverstone Mill, one of which I found nearly filled with it. Abundant in a little pool by the road-side at the entrance of Sandown village from Brading. Ditch in Appuldurcombe Park. Under the cliff at Foreland, Dr. T. Bell Salter. Pond near the village of Pan, Mr. W. D. Snooke in Fl. Vect. Not at all rare, I think, on mainland Hants. Profusely in the neighbourhood of Romsey, filling the meadow-ditches. Common about Christchurch, Ringwood, &c. Chilbolton Common, Andover, and various other places. Side of Stubbington Road (Fareham), Mr. W. L. Notcutt.

Poa bulbosa. In dry, sandy ground and pastures by the sea; occasionally inland; very rare? On the sandy spit below St. Helen's, Isle of Wight, May, 1850, Dr. T. Bell Salter!!! This curious and local little grass is far from plentiful in the above station, but may be gathered at intervals nearly the whole length of the spit or tongue of low, sandy ground that almost closes the entrance to Brading Harbour, converting it at high water into a salt-lake. The Poa prefers the turf, where the herbage is thin, to the bare, loose and shifting soil of the sand-hills, growing on the former in a scattered manner, a few plants here and there, at considerable distances apart. It will probably be detected on other parts of the Hampshire coast, and possibly in the sandy tracts of the interior, but I searched for it unsuccessfully along the south shore of Portsea and the opposite part of Hayling Island in May last, with great expectation of finding it after its discovery at St. Helen's, and from having only a week before gathered it in plenty at Little Hampton, Sussex, with Mr. Borrer, who first noticed it there. My Sussex specimens are much larger and finer than those from the Isle of Wight, and far more abundant, which may account in some degree for my having overlooked the species in the latter station, which I was in the habit of visiting very often, at all times of the year; but Poa bulbosa is at best an inconspicuous grass, with no strongly marked character to arrest the attention of one unacquainted with its appearance when growing, as was the case with myself. Mr. Borrer remarks that this Poa resembles Köhleria (Aira) cristata in its panicle, only much shorter and smaller; to myself, when in full flower, and the branches of the panicle spreading, it recals Poa compressa, or a contracted form of P. pratensis, frequent on wall-tops and dry situations (the var. *subcærulea*, Sm.?) The extremely short, narrow, rough-edged leaves, and copious bulbous offsets from the root, its much earlier flowering time, and other well-marked distinctions, will prevent its being confounded with the remaining species belonging to the section with mostly webbed florets, between which there is a strong and sometimes bewildering resemblance. I cannot find any figure of this grass conveying a correct idea of its aspect, excepting that old one of Vailliant, 'Botanicon Paris.' t. 17, fig. 8, which is very good; those of 'English Botany,' Knapp and Parnell are all extremely defective.*

Poa annua. In meadows, pastures, streets, court-yards, and under walls; the commonest of grasses.

Poa nemoralis. In shady places, woods, thickets, groves, and on hedge-banks, but rarely. Not yet observed in the Isle of Wight. On shady hedge-banks at the south end of Sidmonton Common, near

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* A really well executed work, I mean as to illustrations of the Gramina of Britain, is yet a desideratum to the botany of our country.

Newtown, a few miles S. S. E. of Newbury, in considerable plenty; also on hedge-banks between Hurstbourne Priors and Andover, about a mile from the former along the high-road, plentifully, June 3, 1850. In Akender Wood, near Alton, June, 1850. On a bank between Weekhill Farm and the Hanger, Selborne, Dr. T. Bell Salter, Sept. 1844 !! The above are the only stations I am at present able to give for a grass which is probably not very uncommon in this, as in other of the southern counties of England, although more general and abundant in the northern counties and Scotland. A slender wood form of P. pratensis I have reason to believe is sometimes taken for this species, as is another state of the same grass, growing on walls and in dry places, for P. compressa.

Poa trivialis. In meadows, pastures, woods, groves, and other shady places; abundant. Spikelets said to be sometimes single-flowered in var β. *parviflora*, Parn. In a bundle of specimens pulled in a corn-field near Ryde the glumes were invariably two-flowered, as Smith remarks to be the case occasionally.

Poa pratensis. In similar places with the last, and equally, if not more plentiful than it. Var. β. Slender; leaves long, very narrow; panicle lax; spikelets smaller and narrower. P. angustifolia, *Linn.* ? Sm. Engl. Fl. i. p. 126, with reference to Ray's Syn. and Morison's Plant. Hist. (cum fig.) P. pratensis, var. II. *angustifolia*, Gaud. Fl. Helv. ii. p. 259. Frequent in woods and shady places, and apt, I think, to be taken for P. nemoralis. Var. γ. *P. subcærulea,* Sm. ? P. pratensis, var. III. *strigosa,* Gaud. Fl. Helv. ii. p. 260. On wall-tops and other dry, barren places at Thorley, Cowes, Yarmouth, &c. In this the leaves are much shorter than the culm, rigid and subglaucous; the panicle small, compact; glumes very acute, with mostly three copiously-webbed florets. A somewhat similar but very dwarf form of P. pratensis abounds on dry sand by the sea at Ryde, &c., with short, flat, rigid leaves, and a short, triangular, spreading panicle. The former of the two has, I conceive, been repeatedly taken for P. compressa, as was indeed done by myself; the latter runs a chance of being confounded with P. bulbosa by those unacquainted with the true plant of that name.

Poa compressa. On dry, barren fields, banks and wall-tops; rare? Abundantly in a dry, elevated field above the southern extremity of the park at Swainston, near Rowledge Barn, Dr. T. Bell Salter, Sept. 8, 1843 !!! I have not seen it since, or elsewhere in the island. Plentiful on a wall in the Cathedral Close, at Winchester, immediately facing the entrance to the Dean's house, as well as on several other walls in the vicinity of the cathedral; likewise on the North Walls, and on walls in Hyde Street. On a wall in Basingstoke, by the house of Mr. May, brewer, July 12, 1850. Perhaps not uncommon in the county, but lost sight of by the passing botanist from the close family resemblance between it and other species of the genus, as now restricted. I feel pretty certain of having been shown specimens at Andover, by Mr. W. Whale, gathered there by himself, but have no examples from thence to recur to for full assurance on the point. The Salterns (near Fareham), Mr. W. L. Notcutt. Spikelets, in my Winton specimens, in some examples three to four, in others five-flowered, webless, and agreeing with the var. *subcompressa** (P. subcompressa, *Parn.*). The character of having the highest joint of the culm at or near the middle of the latter, applies only to small or medium-sized specimens; in tall plants the culm is nearly erect from the base, and the uppermost node near the top of the stem. The having the sheath of the topmost leaf about equal in length with the leaf itself, I find a much more, if not always, constant character.

Glyceria aquatica. In ponds, ditches, rivers, streams and water-meadows. This fine and most conspicuous grass is extremely abundant and widely diffused over the whole of mainland Hants, but is totally absent from the Isle of Wight, although there are many localities on this side of the Solent apparently congenial to its habits.† Abundant about Southampton, Winton (Winnal meadows, &c.), Bishop's Stoke, &c. Plentiful about Petersfield, in streams and ditches. In the Avon, near Ringwood, and along most other parts of that river. Exceedingly abundant in wet meadows at Christchurch, Sopley, Avon, Fordingbridge, &c. In the Test, at Forton, near Andover, and at Romsey, besides innumerable other places. Titchfield River, Mr. W. L. Notcutt !!!

Glyceria fluitans. In ponds, ditches, slow streams, and low, wet places, meadows, &c.; frequent over the county and Isle of Wight.

Glyceria plicata. In like places with the last; rare? On the heath near Cæsar's Camp, between Farnham and Farnborough, Mr. H. C. Watson in litt.! With the characters and appearance of this newly-dissevered species (from G. fluitans) of Fries, I am as yet practically unacquainted, but from the description of the assigned distinctions, the diversity of opinion respecting its claims, and above all, from the remarks in the sixth edition of the 'British Flora,' I should fear G. plicata was one of those species that so abound in the pages of systematic botanists, but ignored in the volume of Nature's own inditing.

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* In those from Basingstoke some of the spikelets bore but two florets.

† One cause of the scarcity or absence of a great majority of aquatic or semi-aquatic plants common in other districts of the county, which constitutes a local peculiarity of the Vectian flora, is, I conceive, the impregnation of most of our standing water and slow streams with iron, through the decomposition of the pyritic nodules so abundant in the greensand and argillaceous strata of the island, and which metal certainly acts as a poison to vegetation when in excess in the soil.

Sclerochloa maritima (Poa maritima). In moist pastures by the sea, and in salt-marshes; common along the Hampshire coast, and in several parts of the Isle of Wight. Shores of Yarmouth Harbour, above the mill. Plentiful in the salt-marshes at Newtown, and very fine about the edges of the brine-pits, &c. In abundance by Yarmouth and Brading, Mr. W. D. Snooke in Fl. Vect. !!! The Salterns (Fareham), Mr. W. L. Notcutt. Common along the western coast of the county. Var. β. Stem diffuse, almost prostrate; branches strongly deflexed; Fl. Dan. xiii. t. 2222? (P. distans). At the farthest extremity of St. Helen's Spit, on the beach near the inn. This I gathered (now several years back) for P. distans, but Mr. Borrer regards it rather as a form of the present species.

Sclerochloa distans (Poa distans). In sandy pastures and waste ground, chiefly near the sea. Plentiful in the marsh-meadows behind Ryde Dover. Between Yarmouth and Thorley, in a wet spot at the eastern end of Stopler's Copse, Oct. 5, 1845. Salt-marshes at Lymington. Along the terrace-walk by the shore at the bottom of Pelham Fields, Ryde, abundantly, Rev. G. E. Smith !!!

Sclerochloa Borreri. In muddy salt-marshes, about the edges of the drains and ditches. In the ooze of the ditch on Ryde Dover, at the end of Monkton Street, in the rear of the engine-house, sparingly. Abundant in the first meadow, or that nearest the sea, at Freshwater Gate. Newtown marshes, and on the marsh-meadows behind Ryde Dover, along with S. distans and procumbens, but not observed plentifully, July 21, 1844. The figure, together with the description by Mr. Babington (the founder of the species), of this grass in E. B. Suppl. 2797, are most excellent. At Freshwater, Mr. Borrer, who also finds it along the opposite mainland coast, at Stoke's Bay, Gosport and Southton.

Sclerochloa procumbens (Poa procumbens). In similar places with the three foregoing species; likewise on waste ground, and at the foot of walls, houses, &c., near the sea; not uncommon. In the marsh-meadows at the back of Ryde Dover, but not abundant there, July, 1844. In the lower part of Dover Street, about the edges of the paving and kerb-stones. Under the wall by the Yacht Club House, West Cowes, and on waste ground in front of it, plentifully. By the White House, East Cowes, and in various other places about that town, at least several years ago, but not recently looked for there or in the remaining stations just referred to. I have seen this species on the mainland opposite coast, but cannot now find notes (if I made such) of its occurrence. I believe to have remarked it at Lymington, in or near the Salterns, and I think in other places.

Sclerochloa rigida (Poa rigida). On dry, barren and waste ground, fallows, walls, rocks and cliffs; not uncommon either in the Isle of Wight or across the water. Amongst the ruins of Quarr Abbey, and on Ryde Dover, if not now destroyed by building. On cliffs near Ventnor, St. Lawrence, &c. By the road-side between Niton and Blackgang, at the foot of the stone fences, pretty abundantly, 1842. Abundant in dry, chalky fields at the foot of High Down, between the Needles Hotel and Alum Bay. Corn-field near Calbourne New Barn, 1842. On the wall or stone-faced bank below the church at Newchurch, in considerable plenty, with Petroselinum sativum (quite and long naturalized there). At Yarbridge, and various other places. Shide Chalk-pit, &c.; rather common throughout the island, Mr. W. D. Snooke in Fl. Vect. Not rare on mainland Hants, but time will not permit me now to look out for the observed localities amongst my notes. Fields at Selborne. On a wall at Portsmouth, in plenty, and gathered in many places in the county.

Sclerochloa loliacea. On dry, barren and sandy ground, walls, banks, cliffs, and pastures by the sea, but rare in the Isle of Wight. On Ryde Dover, sparingly; not seen there for years, and in all likelihood now quite extirpated. At St. Catharine's Point, not far from the new lighthouse (St. Catharine's Tower), Sandown Bay. Yarmouth, Isle of Wight, Mr. E. Forster, jun., in Bot. Guide, and Mr. Dawson Turner in Snooke's Fl. Vect. (probably on Norton Spit). St. Helen's, Dr. Macreight, Man. of Brit. Bot., where I also found it, July, 1839. I have no mainland station to assign for this interesting but withal somewhat ambiguous species.

Briza media. In dry or barren fields, pastures, meadows, and on turfy heaths; abundant in every part of the island and mainland. Profusely on the short turf of our high chalk-downs, as well as in the more humid and fertile soil of hay-fields and artificial grass-lands, into the produce of which it sometimes enters rather too largely. A variety with pale-green spikelets, the result of excess of shade or moisture, is not uncommon, and has been occasionally taken or continent, and perhaps with us, for the following. Panicle much less branched or decompounded than in the next species, the spikelets consequently fewer and distant; culms leafless at the top; anthers exserted.

Briza minor. In corn-fields and other cultivated ground, also on thin pasture-land by road-sides, but much seldomer in the latter than the former situations; very rare. In the two last fields, one on each side the road, from Quarr Abbey to Fishouses, abundant in certain years, whenever the land is cropped with corn, particularly wheat, at other times usually scarce. In 1836, when I first observed it, the quantity was very moderate, but the year following it was abundant (I think amongst oats), and in 1839 came up in profusion, both amongst wheat and vetches. In 1840 scarcely a specimen could be found, but in 1842 it was again plentiful, also in 1843, in the right hand field (from Quarr), then in lay. In 1838, when the land was laid down with clover, the plant almost totally disappeared. Again abundant in 1845, and since then up to the present year (1850) found when looked for in plenty occasionally, and if not to be seen in the fields it may almost always be gathered on their grassy margins, although not so abundantly. The Briza is certainly permanent in this, its only known Isle-of-Wight station, and no casual introduction with corn or grass-seeds, as is sufficiently proved by its invariable abundance when certain crops come in rotation. Abundant in corn-fields at Marchwood, near the head of the Southampton Water, on the opposite side to the town, Mr. Borrer !!! I gathered it there in plenty in 1836, and again this summer (1850), and find it scattered over most parts of that vicinity, not only as a weed, in cultivated fields of all kinds, but on the short, thin turf or pasture by the road-sides, along with such semi-pascual and pratal species as Anthemis Cotula, Polygonum aviculare, Pulicaria vulgaris, &c., but much more sparingly than on the tillage-lands,* nor is it, with us at least, a true meadow or pasture-grass, like B. media. Potato-fields at Boscombe, near Bournemouth, between Christchurch and Poole, the Hon. C. A. Harris, ex. J. Curtis in litt. and Brit. Entom. viii. t. et. fol. 353 (from a Hants specimen). No doubt it occurs in other parts of Hants, but only probably in the south-west and along the coast. The Isle of Wight is, I believe, the most easterly station in England for Briza minor, than which few species are more characteristic of the occidental flora. Panicle copiously branched or decompound, with very numerous spikelets; culms usually leafy nearly to the top, anthers included. A more delicate and graceful species even than the last, and one of our most beautiful as well as rare grasses, from the silvery green of the panicle, and pale, tender verdure of the leaves. In size it is scarcely inferior to B. media, rising very commonly in our corn-fields from six to eighteen or twenty inches, and I gathered specimens this summer at Marchwood which were little short of a yard high. The plant tillers like wheat, and sends up frequently numerous culms from the same root, often three, the two lateral exactly of the same size, shorter than the central one, and slightly ascending at bottom. In very tall specimens the summit of the culm is leafless, as in B. media. The stamens appear to me from repeated examination to be either imperfect or wholly wanting in the majority of the lowermost florets of each spikelet, as also the styles.

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* At Poole, in Dorsetshire, Dr. Salter finds Briza minor springing commonly from the interstices of the pavement in the less frequented streets of the town.

Cynosurus cristatus. In dry meadows, pastures, and by road-sides; abundant everywhere in the county, constituting a large proportion of the crop in our hay-fields and grass-lands.

C. echinatus it is possible may some day be found in the sea-side pastures of West Hants.*

Dactylis glomerata. In meadows, pastures, by road-sides and borders of fields, as well as in woods, groves, orchards (thence called Orchard-grass), and other shady places; a common but valuable grass everywhere.

Festuca uniglumis. In the loose, sandy shores of the sea, or in dry, barren ground adjacent; rare. In the loose sand of St. Helen's Spit, Isle of Wight, in the greatest abundance, where it was first noticed by Mr. Borrer!!! South-west shore of Portsea Island, but not very plentifully.

Festuca bromoides. Not uncommon on dry, barren ground, walls, and in sandy pastures. Formerly on Ryde Dover, now probably lost. Wall-top in the Spencer Road, Ryde. Calshot Beach, and various other places in the island and on the mainland. Var. β. *Myurus*, F. Myurus, *Sm.* &c., not Linn. Chiefly on walls, but quite rare in Hants. On the walls round the church-yard at Thorley, in tolerable plenty, June 22, 1841, and repeatedly seen there since by myself. On the garden-wall of Wolverton, by Shorwell, 1839. Wall at East Cowes, June, 1837. Not remarked on the mainland. Said not to be the Linnean F. Myurus, nor of continental botanists. In appearance this, the Capontail-grass, is very distinct from the commoner state of the species.

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* It is said to have occurred in Kent, and in Sussex (Hastings), but I think has not been found in either county of late years. I have seen specimens (Oct. 21, 1845) in the possession of the Rev. Wm. M'cAll, of Brixton, Isle of Wight, gathered under the Hoe, at Plymouth, I believe by the Rev. W. S. Hore.

Festuca ovina. In dry, barren and especially elevated pastures and heathy places; common throughout the county and Isle of Wight. Abundant on the high downs. Var. β. *duriuscula*. Equally frequent. Var. γ. *rubra*, F. rubra, *L.* In loose sand by the sea, and in sandy pastures, I think frequent. On St. Helen's and Norton Spits, Isle of Wight, &c. A mere creeping-rooted state of F. ovina, as I am now quite convinced of its being.

Festuca pratensis. In moist meadows, pastures, on banks, by road-sides, &c.; frequent. Plentiful by the road-side between Ryde and Ashey, at the upper end of Rosemary Lane, if it be not rather the inland state of the last. Var. β. *loliacea*, F. loliacea, *Sm.* Wet meadows, not common. In a marshy meadow called Pan Moor, just out of Newport, towards Shide. Abundant in meadows at Easton, Freshwater Gate, where it may be seen passing into F. pratensis, which abounds there. Whitwell. Meadow by the stream-side a little below Calbourne Mill. By the side of the Medina, between Newport and Shide; Mr. W. D. Snooke in Fl. Vect. !!! Now very properly reduced by common consent to a variety of F. pratensis.

Festuca arundinacea (F. elatior, *Sm.* an Linn.?). On the banks of rivers, and in moist meadows and pastures, also on the moist, sandy sea-beach, and wet banks along the shore; rare. Upper end of Sandown Bay, near the foot of the Culver Cliffs, in plenty. Abundant on the wet, slipped land under the cliffs at the mouth of Luccombe Chine, on the Shanklin side. I have not met with this species as yet on the mainland. Of this tall and stout grass Mr. H. C. Watson, who had also remarked it at Luccombe, writes, March, 1842:—"There is a large Festuca by the shore at the entrance of Luccombe Chine, going thither from Shanklin Chine, which has puzzled me a good deal. A root now in my garden, I *believe* to have been brought from that spot, produces leaves near a yard long, and a culm of five feet high, with very numerous spikelets, much more ovate than those of F. pratensis, and with the glumes and paleæ more acute and slightly awned. I fancy this to be the F. arundinacea of continental botanists." I have seen the same plant at Exmouth and Plymouth. Having neglected to examine this plant for some years, I cannot speak to the divaricate state of the branches of the panicle after flowering, given by

Mr. Watson, as characteristic of the species. The Isle-of-Wight plant would seem assuredly to be the F. littorea of Wahlenberg, Fl. Suec. edit. 2, i. p. 66, as well from the references to the F. elatior of Smith and E. B. as from the agreement of our plant with Wahlenberg's description. The name "elatior" ought, I apprehend, to be retained, as in the last edition of the 'British Flora,' for the F. arundinacea of continental authors is in a hopeless state of confusion, and I fear the characters and synonyms of F. elatior and pratensis are still in a fluctuating condition. They are certainly most puzzling and ambiguous species. The Isle-of-Wight F. arundinacea is a large, maritime form of Smith's elatior.

Festuca gigantea. In moist, shady woods, copses and hedgerows, not uncommon. In Quarr Copse, Shore Copse, and elsewhere about Ryde. Whitefield Wood. Near Yarbridge. Knighton E. Copse; by Newchurch. Shanklin Chine, Appuldurcombe, &c. Frequent in most parts of mainland Hants, so as to make a statement of localities needless. A variety of a more delicate and slender aspect occurs here and there, differing only in having the spikelets fewer and more remote, the number of florets being the same in both. This I believe to be the B. triflorus of Linneus, figured in E. B. xxviii. t. 1918, and in Fl. Dan. iii. t. 440. The present species is nearly intermediate between Festuca and Bromus, making an approach also to Brachypodium; the habit is quite that of a Bromus.

Bromus asper. Abundant in most parts of the county and Isle of Wight, in damp woods, copses, groves, and thick, shady hedgerows. One of the tallest and most graceful of our grasses, often upwards of six feet high, and most conspicuous from its large panicle, elegantly drooping in all directions.

Bromus erectus. On dry, sandy or chalky, open pastures, banks and by road-sides; very rare, or at all events very local, in Hants. At Luccombe, Isle of Wight, where it appears to have been first noticed by Dawson Turner, Esq., and communicated by him to the author of the 'Flora Vectiana'!!! It still grows there in plenty, along the steep descent into the chine from the Bonchurch and Shanklin Road, above Rose Cliff, and in vast abundance on the sloping side of the down above the road between Luccombe and Bonchurch, here and there covering the ground, to the exclusion of every other grass, at an elevation of perhaps about three hundred feet above the sea, June 16, 1844. Bank by the road-side a short distance beyond Weyhill (coming from Andover), before turning off to Appleshaw, also on a hedge-bank near Appleshaw, in both places plentifully, June, [illegible]

These are the only stations at present known to me as affording this rather rare grass, of which the description in Bertoloni's 'Flora Italica' is particularly excellent. The B. agrestis of Allioni, and of the very faithful figure in Host's 'Gramina Austriaca,' i. p. 9, t. 10.

Bromus sterilis. Nearly everywhere, most abundantly, in waste places, by way-sides, the borders of fields, and on dry hedge-banks, walls, &c.

Bromus diandrus. In dry, barren and sandy ground, and especially on old walls; very rare? Not known to me as inhabiting the Isle of Wight. Gathered in some plenty on a wall near the gaol at Southampton, May 28, 1840, and noticed, July 20, 1850, in very considerable plenty on various parts of the ruins of Netley Abbey, in fully ripe seed. These stations I have since learned from Mr. Borrer had been long known to him. It will doubtless be found elsewhere in the county.

B. maximus, a nearly allied species, native in the Channel Islands, may perhaps acquire hereafter a greater claim to be called British by its discovery along our southern coast.

B. tectorum, a common grass on roofs, &c., over most parts of the continent from Sweden southward, seems to differ from B. diandrus in the broader leaves, longer, more whorled branches of the panicle, and smaller and drooping spikelets, and to partake of the characters of both this last and B. sterilis.

Bromus secalinus. In corn-fields; not very uncommon in the Isle of Wight and mainland Hants, but excepting in seed not easily distinguishable from B. mollis. About Ryde, occasionally, but in no fixed station. At Whatcombe, near Newport, Mr. Wm. Hughes, where it abounded to an injurious degree some years ago, having been introduced, Mr. H. supposes, with seed-wheat from Suffolk, and it was only by changing the seed that he was at last successful in ridding his fields of it. At Redhill, abundant, *Id.!* Amongst vetches at Play Street Farm, by Ryde, Mr. Wm. Jolliffe, 1841! On the sea-coast at Ryde, Withering Bot. Arrang. 7th edit. Corn-field at Marchwood, in great plenty, July 22, 1850. Sandy corn-fields at Gore, near Farnborough, July 14, 1850.

Bromus commutatus. In corn and other cultivated fields, and their borders, by way-sides, in pastures, and even in woods and hedges; in various parts of the Isle of Wight. At Ryde, by the new road from the Dover to St. John's turnpike, in plenty, along the bank on the right hand, 1850. By the road-side between Ryde and Brading, before coming to the turning to St. Helen's, frequent, July 5,

1839. Field near Coppid Hall. By the pathway between Sandown and Shanklin, and in a corn-field near Shanklin, towards Luccombe. Hedge-banks near Carpenter's, below St. Helen's, and elsewhere in the island. I am not prepared to give the distribution of this species in mainland Hants from personal observation, but suppose it is not uncommon there. Fields by Down Lane (Fareham), Mr. W. L. Notcutt. Very apt to be mistaken for B. arvensis.

Bromus mollis. A most universal and abundant species throughout the county, in meadows, pastures, corn-fields, waste places, by road-sides, &c. Very variable in the degree of pubescence of the leaves and spikelets.

Bromus racemosus. In just the same places as the last, but somewhat less common and universal. Not rare about Ryde, as in fields between that town and Binstead. Fields near Ashey, &c. Abundant in meadows on Sandown Level, where I find a variety intermediate, as it were, between this and the last, with the culms pubescent. I can hardly believe this to be more than a glabrous state of B. mollis.

†?*Bromus arvensis.* In corn-fields and waste places, by road-sides, &c.; extremely rare, and held to be an introduced and imperfectly naturalized species in all the assigned English stations. Fields near Southampton, Sherard. Corn-field between Netley Abbey and the old fort, 1804 or 1805, Mr. Borrer. Southampton Bay, Hook. and Arn. Brit. Fl. 6th edit. (the same station as the last?—if not, where is Southton Bay ?). I have never seen Hampshire specimens of this grass. The plants belonging to this section of Bromus, which constitutes the genus Serrafalcus, *Parlatore*, and of the 'Manual,' are kept apart by characters not the most satisfactory to such as seek for broad grounds of distinction in species.

Brachypodium sylvaticum. Extremely common in moist woods, thickets, groves, copses, and on shady hedge-banks, as well as on dry, elevated and exposed places on downs and heaths, throughout the Isle of Wight, and in most, if not all, parts of mainland Hants. Var. β. Spikes nearly erect. In open, heathy or grassy places on chalk-downs. "On the downs in various places there is a very deceptive-looking Brachypodium, which I suppose is a variety of B. sylvaticum, but it has some of the characters of B. pinnatum, such as the erect, pinnated spike, cylindrical, hairy spikelets (are not those of B. pinnatum usually smoothish ?), and almost glabrous leaves, but then the leaves are broad and the awns long, which are strong characters of B.

sylvaticum. This plant appears to be nearly intermediate between the two." (Mr. Wm. Wilson Saunders in litt., July, 1841.)

The above remarks of my friend Mr. Saunders apply to a plant I had long and repeatedly observed in dry, open, hilly places in various parts of the island, and which I had always looked upon as a variety of B. sylvaticum, differing merely in its more erect or less drooping spikelets, and such Mr. Mitten, who received specimens from me, considers it. The variety occurs abundantly on the slopes of the downs at Bonchurch; between Shorwell and Brixton; behind the Tolt Copse, near Gatcombe; near Hampstead; by Yarmouth, &c. It is certainly different in aspect and character from the genuine B. pinnatum, which I have not succeeded in finding in this county, although from its frequency in most of the adjoining ones I cannot but think it must soon be forthcoming in Hants. Our var. β. I have seen in many places across the water, and gathered it plentifully at the back of Box Hill in August last.

The inner pale in the florets of B. sylvaticum overlaps and includes two of the stamens, and the ovary, leaving the scale (nectary, Sm.), which is deeply cloven almost to the base, and the remaining stamen between the pales, free; this third and outer stamen lies in and exactly fills the space left between the inflexed edges of the inner pale.

Triticum caninum. In woods, thickets, hedges, and on banks, &c., particularly chalk or limestone, and in shady situations; to myself appearing quite uncommon in Hants, as I think I have heard Mr. Borrer say it is in Sussex. I cannot quote a single habitat for this species in the Isle of Wight from my own observation, and as I understand the plant, but Dr. Salter finds what he considers T. caninum plentifully in hedges between Holm Wood and Aldermoor Mill, near Ryde, as also between Havant and Leigh Park. In Akender Wood, near Alton, July 13, 1850. Butler's Copse, by Hambledon, Aug. 8, 1850. Thick hedgerow a few hundred yards east of Nettlebed Farm, near Alresford; in all three stations quite sparingly, and in company with Hordeum sylvaticum (Elymus europæus), of which it has much of the aspect. At all times readily distinguishable from every variety of the two following by its fibrous root, fewer (three to five) ribbed florets, and very long, wavy awns, that give it a remarkably bristly appearance.

Triticum repens. On hedge-banks, borders of fields, in waste and cultivated places, woods, &c. A very common and often extremely troublesome grass. Var. β. *littorea.* Whole plant more or less glaucous; florets with or without awns (Host. Gram. Aust. iv. p. 5, t. 9, and perhaps also his T. glaucum, p. 6, t. 10). Abundant under the shore at Apley, and along the coast at the Priory, Sea View, &c. Under Apley walks the plant may be found exhibiting every gradation between the awned and unawned states, and of every shade of colour between the usual inland green and the intensest blue of glaucescent tinge, which it generally contracts by the sea. Wicor Hard; Cams shore; the Salterns (all near Fareham): Mr. W. L. Notcutt.

Triticum junceum. On sandy banks, hillocks, and waste ground by the sea-beach, along with var. β. of the preceding. Very fine on the shore a little east of Ryde, beyond Apley House. Sandy shore at the Priory. In great abundance on the loose sand of Norton Spit, and in many other places. The characters given for discriminating this from the preceding, both being themselves prone to exhibit great inconstancy in the very points adduced as arguments for their separation, are just such as may be created by the modifying influences of soil and situation. My own belief is, that T. junceum is but a sea-side variety of T. repens, whilst T. caninum is to all appearance truly distinct from either.

Lolium perenne. Plentiful everywhere in meadows, pastures, waste ground, corn-fields, by road-sides, &c. Var. β. Spikes branched. In the Spencer Road, Ryde, Dr. T. Bell Salter! who finds this compound form extremely common about Ryde, on the Dover, between Ryde and Ashey, as well as elsewhere.

Lolium multiflorum. In cultivated fields, and on banks, &c.; rare, and probably either naturalized by direct importation with foreign grass-seed, or an annual or biennial state of L. perenne, produced by culture, as suggested by the authors of the sixth edition of the 'British Flora.' In a clover-field near Fernhill, Aug. 1841. Plentiful and with very long awns along a private path to Brooklands (the Rev. Augustus Hewitt's) from Binstead, Dr. T. Bell Salter!

Lolium temulentum. In corn-fields, chiefly amongst wheat and barley, but certainly not common in the county, at least in this island, nor have I chanced to fall in with it myself. Between Lake and Sandown, Dr. T. Bell Salter, Sept. 1838 (two species only)! Amongst barley at Whitcombe, near Newport, Mr. Wm. Hughes! Corn-fields about Yarmouth, the late Mr. Joseph Squire; and Thorley, Mr. R. Gibbs!

W. A. BROMFIELD.

Eastmount, Ryde, Isle of Wight.

(To be continued.)

Contents of the 'Botanical Gazette,' No 23, *November,* 1850.

On the Structure of the Fruit in Punica; by H. F. Hance, Ph. D.

On the Coloration of the Water of the Serpentine; by William Thompson, Esq.

A Notice of Potamogeton trichoides of Chamisso as a Native of Britain; by Charles C. Babington, M.A.

On the Morphology of Tubers and Bulbs; by T. Irmisch.

Literature: Hooker's 'British Flora,' sixth edition. 'Annals of Natural History.' 'Hooker's Journal of Botany.' 'The Phytologist.' 'Botanische Zeitung.'

Proceedings of Societies: Botanical Society of London.

Miscellanea: Record of Localities. On the axillary Bulbils of the Garden Tulip; by the Rev. R. C. Douglas, M.A. New Arrangement of the Cruciferæ; by M. Chatin. Remarks on the Growth of certain large Stems of Algæ, and on the means of determining their age; by F. J. Ruprecht. Collections of Plants.

Contents of 'Hooker's Journal of Botany,' No. 23, *November,* 1850.

The Origin of the Existing Vegetable Creation; by J. F. Schouw; translated by Dr. Wallich.

Notes on the Botany, Weather, &c., of the United States; by W. A. Bromfield, M.D.

On the Dates of Fezzan; by Dr. James Richardson.

Contributions to the Botany of Western India; by N. A. Dalzell, M.A.

Appendix to the 'Spicilegia Gorgonea,' published in the 'Flora of the Niger Expedition;' by P. B. Webb, Esq.

Botanical Information: Note on Stilbaceæ; by Dr. Benjamin Clarke. On the Kosso, or Braya anthalmintica. Victoria Reginæ. Mr. Spruce's Dried Plants of the Amazon.

Notices of Books: Hooker's Sikkim Rhododendrons. Griffith's Posthumous Papers.

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